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U. S. DEPARTMENT OF COMMERCE  
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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

JANUARY 1952  
Volume 3 No. 1.





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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

Volume 3 No. 1

JANUARY 1952

### GENERAL SUMMARY OF WEATHER CONDITIONS

For January 1952 the temperature was mild, total precipitation was above normal, snowfall was unusually heavy in the far western and north-central areas, and thunderstorms were above average east of the Rockies. Low pressure areas generally gained only light or moderate intensity. The number of tornadoes was above average. There were two destructive ice storms, and two damaging floods. Pressure was below normal except in the Southeast and extreme Southwest, and sunshine was about normal except much below from the Great Lakes to the Gulf. There were few record extremes or unusual fluctuations of temperature.

The monthly average temperature value for the United States was 33.6°, which was 1.6° above the long-term mean and the highest since 1944. On the East Coast monthly averages ranged from 72° at Miami, Fla., to 23° at Portland, Maine; in central areas from 67° at Brownsville, Tex., to -4° at Eckman, N. Dak.; and on the West Coast from 54° at San Diego, Calif., to 40° at Seattle, Wash. Monthly average temperatures were slightly below normal in the Pacific States and Western Plateau and along the Northern Border to Minnesota. Elsewhere, averages were above normal with departures ranging up to 8° along the Atlantic Coast and in the South.

Extreme temperatures ranged from 92° at McCook, Tex., on the 26th to -46° at Lac Frontier, Maine, on the 30th. East of the Rockies highest temperatures generally occurred in southern areas on the 1st, in the central Great Plains and Midwest about the middle of the month, and in the northern Great Plains and far West during the closing days. Lowest temperatures generally occurred from the 29th to 31st east of the Mississippi River, from the 24th to 29th in north-central areas, and during the closing days in the Mountain and Pacific States.

Total precipitation averaged 2.31 inches, which was 0.05 inch above the long-term mean. Precipitation was below normal in the Southern States, the central Great Plains, and the Rocky Mountain region and above in most other areas. Excesses were greatest in California where monthly totals ranged up to 300 percent of normal, and in the upper Ohio Valley and extreme northern Great Plains where they ranged up to 200 percent of normal. Extreme southern Florida received only about 25 percent of normal precipitation and the western portion of the Great Plains from Wyoming southward and most south-central areas less than 50 percent.

Precipitation was generally fairly well distributed through the month. On the West Coast precipitation was frequent with heavy amounts in parts of California from the 6th to the 7th, 12th to 18th, and 24th to 25th and in parts of western Washington and Oregon on the 14th and 15th, 19th, and 30th and 31st. Juncal Dam, Calif., measured the greatest monthly total, 28.09 inches, and also the greatest 24-hour amount for the month, 13.21 inches, on the 15th. East of the Rockies heavy precipitation fell in a belt extending from northern Mississippi and

Louisiana to Virginia on the 10th, in northeastern Indiana and northern Ohio on the 17th, in Tennessee and a few surrounding areas on the 22d, and along the Atlantic Coast from North Carolina to Maine on the 23d. From the 26th to the 28th moderate to heavy rains were rather general east and south of the Great Lakes. The greatest monthly total east of the Rockies was 11.26 inches in North Carolina, but monthly totals exceeding 10 inches were reported from stations in Georgia, Tennessee, and West Virginia.

Snowfall was above normal along the New England Coast, in north-central areas from the Great Lakes westward, and in the Pacific States and Western Plateau region. Eastport, Maine, received 274 percent of normal, Bismarck, N. Dak., 288 percent, and stations in the Sierra Nevada Mountains up to more than 600 percent of normal for the month. The monthly total snowfall ranged up to 54 inches in the Northeast, 43 inches in north-central areas, and 218 inches in the far West.

Snowfall in the Sierra Nevada and Cascade Mountains, the region of heaviest snowfall in the United States, was the heaviest in many years, with some stations reporting record depths. A Southern Pacific passenger train, the "City of San Francisco", with over 200 persons aboard was trapped near Donner Summit for several days. This was the first time a train on this road had been tied up in the Sierras by snow in about 60 years. At one time the snow was 10 feet deep in the streets of Truckee, Calif. On the 17th the snow depth at Norden, Calif., was 218 inches, the greatest early-season depth in the Sierras since 1898. Snowfall was also heavy in the central and northern Rocky Mountains, and at the end of the month depths were over 100 inches at some higher stations. From the 9th to the 16th the snow depth at Lakeview, Mont., increased from 31 to 99 inches.

The most extensive snowcover during the month east of the Rockies occurred on the 4th when the southern limit of the cover, as indicated by the 1-inch line, extended from the central coastal areas of Massachusetts westward through central Connecticut, central Pennsylvania, northern Ohio and Indiana, central Illinois, southern Missouri, central Oklahoma, the Texas Panhandle, and the northern third of New Mexico. Melting began in central areas the next day and by the 9th the cover had receded almost as far north as the Great Lakes where it remained with only slight fluctuations during the remainder of the month. A reduction began in Pennsylvania about the 14th and by the 18th New York and Pennsylvania were practically bare. By the 21st New York and Pennsylvania were covered again, but this soon melted.

Severe local storms, particularly thundersqualls and tornadoes, were more frequent than usual east of the Rocky Mountains. Only two tornadoes caused as much as \$100,000 damage, one occurring in Pennsylvania on the 17th and the other in Georgia on



# GENERAL SUMMARY OF WEATHER CONDITIONS--Continued

JANUARY 1952

the 22d. Winter-type storms such as glaze, snow, blizzards, etc., caused the greatest damage. The worst of these occurred as glaze from the 1st to the 4th, causing damage in extreme southeastern Missouri and adjacent areas. In some sections of Missouri the ice on objects was nearly an inch thick. Damage from this storm was estimated at \$1,000,000 in Missouri, \$200,000 in Kentucky, \$177,000 in Arkansas, and \$176,250 in Illinois. On the afternoon of the 26th a tornado which passed through the vicinities of Almyra and Stuttgart, Ark., was followed by a second smaller one in the same vicinities 30 minutes later. While cyclones did not develop great intensity over

land, an intense storm off the New England Coast caused damage to shipping interests along the shore. The month's most severe blizzard occurred in the Dakotas from the 20th to the 22d. Preliminary estimates of flood damage amounted to several million in California, \$750,000 in West Virginia, and probably as much as \$1,000,000 in Ohio. There was also some damage in Kentucky. Damaging flash floods occurred in Arizona.

The weather was generally favorable for agricultural interests. The main exception was the lack of moisture for the small grain crop in some western sections of the lower Great Plains and for vegetables in extreme southern Texas.

## CONDENSED CLIMATOLOGICAL SUMMARY

Table 1

JANUARY 1952

Section	Temperature										Precipitation									
	Average	Departure from normal	Station	Monthly extremes						Average	Departure from normal	Monthly extremes								
				Highest	Date	Station	Lowest	Date	Station			Greatest	Station	Least						
*F.	*F.		*F.			*F.		In.	In.		In.		In.							
Alabama	53.5	+6.7	3 Stations	82	01	Gadsden	10	30	3.98	-1.04	Colbert Steam Plant	9.94	Gulf Shores 2SSE	0.75						
Arizona	41.4	+9	Tucson U of A	81	24	2 Stations	-17	02	1.64	+6.5	Bright Angel R S	6.88	Wellton	.10						
Arkansas	47.3	+6.1	Several	82	01	Bentonville	10	23	3.86	-.58	Walnut Ridge CAA AP	7.15	Abbott	1.05						
California	41.1	-3.1	Santa Ana	81	28	Boca	-39	1	7.66	+3.68	Juncal Dam	28.09	Blythe	.30						
Colorado	25.5	+2.2	Eversoll Ranch	76	25	Walden	-43	3	1.11	+1.18	Wolf Creek Pass 4W	11.21	5 Stations	.00						
Connecticut	30.5	+3.5	Waterbury	63	26	Norfolk 2SW	-10	30	5.17	+1.34	Derby	7.72	West Hartford	3.85						
Delaware	38.4	+3.3	Lewes	70	15	Millsboro	6	31	5.28	+1.70	Georgetown	5.81	Wilmington Porter Res	4.73						
Florida	62.9	+3.7	6 Stations	87	01	Glen St. Mary	23	15	1.15	-1.55	Crestview CAA AP	3.37	Cedar Key	.00						
Georgia	54.5	+6.2	Bainbridge	89	2	Blairsville Exp. Sta.	6	30	2.65	-1.42	Flat Top	10.27	Savannah Beach 2N	.79						
Idaho	21.1	-2.4	2 Stations	52	013	Chilly Barton Flat	-35	18	2.16	+1.15	Cambridge	7.25	Sugar	.30						
Illinois	31.6	+3.9	Greenville	77	17	Stockton	-15	24	1.76	-.57	Cairo WB City	5.36	Quincy CAA AP	.47						
Indiana	33.3	+4.6	Huntingburg AP	77	17	Hobart	-6	30	3.44	+4.4	Richmond AP	6.25	Farmersburg 3SW	1.33						
Iowa	20.4	+7	3 Stations	67	014	Sibley	-29	29	1.34	+3.3	Britt	3.53	Corning 1W	.30						
Kansas	34.7	+4.4	Elkhart	76	25	2 Stations	-6	05	.33	-.33	Oswego	1.46	Burdett 6SSE	.7						
Kentucky	41.7	+5.6	4 Stations	80	01	5 Stations	2	30	5.36	+7.78	Frenchburg	8.35	Uniontown Dam 49	3.14						
Louisiana	59.6	+8.5	North Livingston	88	22	Chatham	20	11	2.91	-1.98	Cotton Valley	6.50	Atchafalaya	.85						
Maine	19.4	+2.3	Bar Harbor	57	16	Lac Frontier	-46	30	4.22	+8.6	Bar Harbor	8.36	The Forks	1.69						
Maryland	38.4	+4.9	2 Stations	75	15	Oakland	-7	30	4.74	+1.39	Oakland	7.19	Hagerstown	3.39						
Massachusetts	30.2	+3.7	Clinton	62	26	Westfield CAA AP	-11	30	4.46	+7.8	Nantucket WB AP	6.29	2 Stations	3.24						
Michigan	23.4	+3.3	Ionia State Hospital	69	20	Lupton 1SW	-31	29	2.50	+7.0	Deer Park State For.	4.56	do	1.41						
Minnesota	7.6	-1.2	3 Stations	47	31	Detroit Lakes INNE	-43	29	1.09	+3.5	Caledonia	2.61	Caribou 2S	.16						
Mississippi	54.9	+7.4	Aberdeen	85	1	Booneville	16	30	3.76	-1.49	New Albany 1SE	8.37	Collins	1.15						
Missouri	36.0	+5.2	Crystal City	78	19	Memphis	-8	029	1.35	-.96	New Madrid	6.56	Fairfax	.16						
Montana	13.4	-5.1	Yellowtail Dam	59	31	Chester	-38	23	.65	-.08	Lakeview	4.87	2 Stations	.7						
Nebraska	26.0	+2.9	3 Stations	67	016	2 Stations	-20	23	.44	-.11	Butte	1.40	Harrison 1ONE	.00						
Nevada	27.0	-3.7	Las Vegas	68	27	Virgin Valley	-27	17	1.67	+6.1	Marlette Lake	9.94	Coaldale	.14						
New Hampshire	22.7	+3.5	Fabyan	55	2	First Conn Lake	-30	30	3.99	+9.9	Dublin	6.33	Bethlehem	1.59						
New Jersey	35.1	+4.0	2 Stations	68	15	Layton 3NW	-6	30	5.15	+1.52	Vineyard	6.65	Toms River	3.31						
New Mexico	36.7	+4.8	Bitter Lake WL Ref	82	25	Dulce	-25	10	.61	+0.3	Chama	4.31	6 Stations	.00						
New York	25.8	+2.6	Dansville CAA AP	64	15	Speculator	-33	30	3.11	+2.1	Lake Ronkonkoma	8.00	Lawrenceville	1.05						
North Carolina	47.2	+5.3	2 Stations	83	02	Mt. Mitchell	-6	029	3.60	-.12	Wayah Bald	11.26	Manteo	1.72						
North Dakota	3.0	-3.9	3 Stations	45	31	2 Stations	-37	024	.70	+2.22	Carrington	2.34	2 Stations	.13						
Ohio	34.5	+5.3	Portsmouth	77	1	Mansfield	-6	30	4.95	+1.98	Dayton WB AP	7.07	Toledo Coast Guard	2.03						
Oklahoma	45.3	+7.3	2 Stations	85	01	Kenton	-1	4	.99	-.56	Carnasaw Tower	5.50	2 Stations	.7						
Oregon	28.9	-2.8	do	65	027	Seneca	-26	2	4.02	+1.14	Gold Beach R S	20.45	Union	.21						
Pennsylvania	32.3	+3.7	Uniontown	73	1	Bradford 4W Res	-9	30	4.59	+1.39	Sagamore 1SE	8.65	Kegg	1.96						
Rhode Island	33.2	+3.5	Providence WB City	58	1	Greenville	-3	30	4.76	+7.8	Austin	5.53	Greenville	4.29						
South Carolina	55.3	+6.0	Florence WB AP	83	1	Caesars Head	6	30	2.50	-.93	Caesars Head	6.33	Georgetown	.80						
South Dakota	13.3	-3.8	Rapid City	62	30	2 Stations	-30	29	.75	+2.0	Armour	2.23	3 Stations	.00						
Tennessee	45.6	+6.2	3 Stations	80	1	do	3	30	5.72	+6.6	Petersburg	10.10	Martin Jr. College	2.77						
Texas	51.3	+7.3	2 Stations	92	01	Utharth CAA AP	1	4	.81	-.79	Marshall	6.31	13 Stations	.00						
Utah	23.1	-1.7	Zion N F	63	028	Scotfield Dam	-42	2	1.76	+5.9	Alta	8.47	Callao	.19						
Virginia	41.4	+4.7	Roanoke	81	1	Burkes Garden	-3	30	4.72	+1.42	Capron	8.23	Cootes Store	2.08						
Vermont	20.3	+2.4	Northfield Norwich U	50	1	2 Stations	-28	030	2.76	-.01	Seersburg Station	5.14	Gilman	1.52						
Washington	27.2	-3.6	3 Stations	62	028	Chewelah 2S	-30	1	3.83	-.54	Cushman Dam	21.22	Clarkston Heights	.48						
West Virginia	38.5	+5.4	Williamson	81	01	Kumbrabow St. Forest	-12	30	5.54	+1.88	Pickens	10.25	Franklin	2.71						
Wisconsin	16.4	+2.1	Kenosha	52	014	Danbury	-40	024	1.77	+5.3	Port Washington	6.00	Grantsburg	.69						
Wyoming	18.5	+1.9	Torrington Exp Farm	64	13	Bondurant	-41	3	.57	-.27	Moose 3NW	4.20	11 Stations	.00						
Alaska (October)	26.1	-2.9	Beil Island	70	13	Tanacross	-20	21	1.85	-.97	Little Port Walter	23.35	Northway WB AP	.02						
Hawaii (December)	69.8	.0	Puunene AP	90	2	Haleakala R S	35	26	9.64	+1.74	Kukui	40.00	Puuko	.06						

\* Other dates also.



## CLIMATOLOGICAL DATA

JANUARY 1952

Table 2

State and station	Pressure			Temperature										Precipitation					Wind				No. of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	Elevation (ground)	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days 90° F. or above	No. of days 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days 0.1 inch or more	With thunderstorms	Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile	No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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## CLIMATOLGGICAL DATA

Table 2-Continued

JANUARY 1952

State and station	Pressure										Temperature										Precipitation										Wind										No. of days (sunrise)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	Elevation (ground)		Sea level		Average maximum		Average minimum		Average		Departure from normal		Highest		Date		Lowest		Date		No. of days above		No. of days below		Average dew point		Average relative humidity		Total		Departure from normal		Greatest in 24 hours		No. of days		Snow, Sleet, Hail		Max. depth on ground		Average hourly speed		Prevailing direction		Fastest mile		Direction		Clear		Pearly cloudy		Cloudy		Sky cover, tenths (sunrise to sunset)		Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max. 90° F. or above	Min. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days	Snow, Sleet, Hail	Max. depth on ground	Average hourly speed	Prevailing direction	Speed	Direction	Clear	Pearly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	Flt	Mb.	Mb.	F	F	F	F	F	F	F	F	F	F	%	In.	In.	In.	In.	In.	In.	M.	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M



## CLIMATOLOGICAL DATA

Table 2—Continued

JANUARY 1952

State and station	Pressure			Temperature										Precipitation				Wind				No. of days	
	Elevation (ground)	Station	Sea level	Average maximum		Average minimum		Average	Departure from normal		No. of days	No. of days			Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		to sunset		
				°F	°F	°F	°F		°F	°F		°F	°F	°F	°F	°F			°F	°F	°F	°F	°F
	ft.	mb.	mb.	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F		
NEVADA																							
Elko	5075	843.6	1019.0	31	8	19.3	----	42	12	13	3	0	31	13	72	1.56	-----	0.70	11	0	10.6	6	
Ely	6257	807.0	1021.7	30	5	17.6	-----	5.3	11	31	24	1	0	31	---	1.92	+0.92	.95	11	0	17.8	20	
Las Vegas	2162	951.9	1019.0	33	31	41.8	-----	4	52	25	17	4	0	15	16	55	1.07	+4.45	1.01	4	0	5.6	
Reno	4397	859.8	1017.6	37	15	26.2	-----	4.7	53	31	1	1	0	29	19	72	1.89	+3.35	.78	13	0	18.1	
Winnemucca	4299	866.6	1018.5	37	18	27.5	-----	1.1	48	21	1	2	0	30	20	71	1.49	+4.46	5.9	11	0	8.6	
NEW HAMPSHIRE																							
Concord	339	1006.4	1017.6	34	13	23.4	+4.4	46	11	14	34	0	30	18	74	1.59	+1.59	9.4	15	1	27.6	25	
Mt. Washington	6262	796.5	1010.5	18	1	9.3	+3.5	36	1	21	24	0	31	---	73	2.50	-3.43	4.8	18	0	22.5	9	
NEW JERSEY																							
Atlantic City CO	8	1017.3	1019.3	45	32	38.8	+6.3	60	11	10	30	0	19	---	---	5.46	+1.97	.98	14	0	T	T	
Newark	11	1018.0	1019.1	43	28	35.8	+6.0	59	27	7	30	0	11	26	69	4.92	+1.12	.98	14	0	3.7	4	
Trenton CO	56	1012.2	1019.3	44	29	36.4	+5.9	59	27	7	30	0	22	---	---	1.44	+1.03	7.9	15	0	4.2	2	
NEW MEXICO																							
Albuquerque	5310	849.6	1018.3	51	28	39.0	+4.9	67	25	15	10	0	34	21	71	2.96	-2.20	1.9	3	0	T	T	
Clayton	4969	842.6	1016.4	52	23	37.3	+3.3	69	25	5	23	0	27	19	50	3.33	+0.07	2.3	2	0	4.0	4	
Raton	6379	802.9	1016.4	49	18	33.4	---	60	29	---	---	0	31	---	---	---	---	.18	2	0	4.1	4	
Roswell	3611	892.3	1017.2	62	29	45.6	+6.4	79	25	9	4	0	18	21	45	2.21	-3.32	2.1	2	0	2.3	2	
NEW YORK																							
Albany	277	1014.9	1019.8	34	19	26.3	+6.2	45	26	-3	30	0	27	19	73	2.12	-2.28	.75	14	0	10.0	3	
Bear Mountain	1300	---	---	37	40	28.4	---	52	1	-4	30	0	28	---	---	4.53	---	1.31	17	9	8.3	3	
Binghamton	1601	957.3	1016.8	33	17	25.1	---	52	15	5	30	0	28	19	79	2.94	---	1.07	16	1	11.8	4	
Buffalo	583	989.8	1019.1	36	21	28.5	+4.6	58	15	1	29	0	27	21	82	3.75	+4.45	.77	22	0	16.8	2	
New York CO	10	1006.4	---	44	29	36.4	+5.5	60	27	7	30	0	21	---	---	4.76	+1.10	8.4	17	0	3.1	3	
New York	19	1017.3	1019.0	44	29	36.7	---	61	27	6	30	0	20	27	69	5.51	---	1.22	18	0	2.8	2	
Oswego CO	292	1005.8	1018.6	35	21	27.6	+4.0	59	15	-4	30	0	28	---	---	2.31	-1.60	5.2	20	1	18.6	5	
Rochester	543	998.6	1018.7	35	20	27.7	+4.7	61	15	-1	29	0	28	23	81	2.47	-4.2	.53	21	1	13.9	1	
Syracuse	399	996.6	1019.3	35	19	26.8	+4.0	60	15	-2	29	0	28	20	75	2.45	-1.27	.60	19	1	14.5	5	
NORTH CAROLINA																							
Asheville CO	2203	---	---	54	35	44.3	+8.9	76	1	9	30	0	11	---	---	3.09	-0.01	1.20	13	0	1	T	
Asheville	2093	946.2	1021.5	---	---	---	---	---	---	---	---	0	---	34	75	---	---	---	---	---	---	7.2	
Charlotte	753	992.9	1021.2	58	38	47.8	+8.3	78	2	16	30	0	9	36	84	3.11	-1.89	1.06	5	0	T	0	
Greensboro	891	989.8	1021.8	55	34	44.3	+6.4	76	2	13	30	0	15	34	72	3.58	+0.01	1.55	12	0	3	T	
Hatteras	4	1020.3	1020.8	56	43	49.7	+2.6	68	2	27	30	0	5	44	82	2.66	-1.76	1.82	10	1	T	0	
Raleigh CO	400	---	---	58	39	48.3	+7.2	80	2	18	30	0	4	---	---	4.17	+5.1	2.18	9	0	2	T	
Raleigh	438	1010.2	1021.3	57	36	46.8	---	79	2	15	31	0	13	35	68	4.51	---	2.35	8	1	T	T	
Wilmington	30	1020.0	1021.8	63	42	52.3	+5.8	78	1	21	31	0	8	44	76	1.91	-1.38	1.03	9	0	T	0	
Winston-Salem	967	985.4	1021.4	54	36	45.0	+5.9	75	2	14	30	0	11	31	62	4.61	+1.12	1.90	11	0	T	0	
NORTH DAKOTA																							
Bismarck	1653	955.3	1019.4	13	-10	1.8	-4.5	43	31	-27	23	0	31	-6	79	1.24	+7.9	.67	10	0	16.1	17	
Devils Lake CO	1471	961.4	---	10	-8	---	---	42	31	-24	24	0	31	---	---	7.6	+2.9	4.6	13	0	10.7	11	
Fargo	895	982.4	1019.4	12	-9	1.4	-2.4	40	31	-32	29	0	31	-5	73	1.07	+4.0	.57	8	0	11.2	17	
Williston CO	1877	946.8	1018.7	11	-3	5.6	-1.8	41	31	-25	1	0	31	-3	73	1.57	+0.3	1.7	9	0	7.3	11	
OHIO																							
Akron	1210	980.7	1019.8	39	23	30.8	+3.4	61	1	-3	29	0	26	26	83	5.55	+2.95	1.89	21	2	5.1	2	
Cincinnati OBS	950	---	---	46	30	37.7	+7.4	68	1	8	30	0	21	---	---	4.29	+1.81	1.04	18	3	1.2	T	
Cincinnati	871	987.5	1020.2	45	29	36.6	---	66	1	4	30	0	21	30	76	3.99	---	1.82	15	3	1.8	1	
Cleveland CO	663	---	---	40	27	33.3	+6.8	64	1	9	30	0	26	---	---	3.35	+8.4	1.34	13	---	---	---	
Cleveland	787	991.2	1019.2	40	25	32.2	+7.5	64	1	3	30	0	25	26	79	5.02	+2.51	1.74	20	3	9.3	4	
Columbus CO	724	---	---	42	29	35.8	+7.2	67	1	11	30	0	6	23	---	---	6.02	+2.96	3.12	14	4	1.9	1
Columbus	815	989.5	1020.1	43	28	35.1	+8.2	67	1	7	30	0	26	29	78	5.99	+2.62	2.92	16	4	2.7	1	
Dayton	1002	982.7	1020.3	41	26	33.5	+5.8	63	17	6	30	0	26	28	81	7.07	+3.84	3.41	16	4	2.4	2	
Sandusky CO	603	996.3	---	40	26	32.9	+6.6	63	17	7	30	0	26	---	---	3.97	+1.71	1.50	16	2	3.1	1	
Toledo	621	995.3	1019.2	38	24	30.8	+6.3	64	17	7	30	0	26	26	81	3.61	+1.45	1.11	17	2	5.8	3	
Youngstown	1178	975.6	1019.1	39	23	30.7	+4.0	62	1	3	30	0	26	25	80	6.82	+4.37	2.16	21	3	4.2	1	
OKLAHOMA																							
Oklahoma City	1254	971.6	1019.3	55	34	44.2	+7.8	76	25	16	23	0	16	32	67	1.09	-1.10	.70	4	0	2.4	2	
Tulsa	672	994.9	1019.1	53	32	42.8	+7.5	75	14	15	23	0	16	32	72	1.91	-1.77	.40	5	1	1.6	1	
OREGON																							
Baker	3369	---	---	---	---	---	---	---	---	---	---	---	---	17	---	---	---	---	---	---	---	7.8	
Baker CO	3446	893.3	1018.7	30	16	23.4	-1.6	41	24	-4	1	0	31	---	---	1.41	-0.98	1.10	13	0	7.9	10	
Burns CO	4140	870.0	1017.4	31	11	21.0	-3.6	46	31	-10	3	0	31	18	85	1.56	+0.01	2.8	19	0	23.6	21	
Eugene	364	1000.0	1014.1	46	33	3																	



## CLIMATOLOGICAL DATA

Table 2--Continued

JANUARY 1952

State and station	Elevation (ground)	Pressure			Temperature										Precipitation										Wind				No. of days (sunrise to sunset)					
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. 90° F or above	No. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days 1/16 inch or more	With thunderstorms	Total	Snow, Sleet, Hail	Max depth on ground	Average hourly speed	Prevailing direction	Fastest mile	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunrise	
Ft.	Mb.	Mb.	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	%	In.	In.	In.	In.	In.	In.	In.	In.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	
SOUTH CAROLINA (Cont'd.)																																		
Columbia CO	332	1009.1	-----	62	44	53.1	+7.1	78	1	22	30	0	6	---	2.45	-0.97	0.98	5	0	T	0	---	29	SW	10	9	8	14	6.5	52	---			
Columbia	217	1013.5	1021.9	64	44	52.3	---	79	3	18	31	0	6	41	70	3.46	---	1.77	5	0	0.0	0	8.0	SW	---	---	---	---	---	---	---	---	---	
Florence	146	1015.9	-----	64	41	52.8	---	83	1	20	31	0	9	---	2.21	---	1.13	8	0	T	0	---	---	---	---	---	---	---	---	---	---	---	---	
Greenville	1006	983.4	1021.1	58	40	48.7	+8.4	75	1	17	30	0	8	37	69	3.68	-1.19	1.61	11	0	T	0	8.4	SW	48	N	6	10	15	6.6	54	---		
Spartanburg	801	991.2	-----	58	39	48.5	+6.4	76	1	18	30	0	9	---	---	3.99	-.24	1.61	8	0	T	0	---	---	---	---	---	---	---	---	---	---	---	---
SOUTH DAKOTA																																		
Huron	1282	968.8	1018.8	19	-1	9.4	-1.9	39	31	-17	29	0	31	3	78	1.12	+5.56	.81	6	1	12.1	12	10.3	SSE	42	NW	22	7	14	10	6.2	70		
Rapid City	3215	898.1	1016.5	36	9	22.5	+2.5	60	30	-18	22	0	31	11	68	.01	-.44	.01	1	0	1.1	T	8.6	NNW	61	NW	21	17	7	13	5.4	55		
Sioux Falls	1420	964.8	1019.1	24	1	12.4	-3.2	44	31	-22	29	0	31	7	78	.94	+2.7	.52	6	0	5.7	7	10.2	NW	*32	WNW	14	0	3	19	6.9	---		
TENNESSEE																																		
Bristol	1512	966.8	1021.5	52	34	43.0	+4.1	74	1	11	30	0	16	34	74	4.09	+4.4	.73	17	0	.4	T	7.3	WSW	*24	W	22	3	6	22	7.9	---		
Chattanooga	670	994.2	1022.1	56	39	47.4	+8.3	77	1	15	30	0	10	38	73	6.35	+1.09	2.21	13	2	T	0	8.0	SSW	30	N	18	2	6	23	8.1	32		
Knoxville	949	986.1	1022.1	55	38	46.5	+8.5	75	1	15	30	0	11	39	76	4.56	-.10	1.39	14	1	T	0	9.2	W	40	W	20	1	7	20	7.9	35		
Memphis CO	271	-----	-----	54	40	47.4	+6.5	75	27	21	29	0	9	---	---	3.93	-.88	1.01	9	---	T	0	---	---	---	---	---	---	---	---	---	---	---	
Memphis	263	1006.4	1021.5	55	40	47.5	+7.8	76	1	22	30	0	9	39	74	5.55	+6.0	1.66	9	0	T	0	13.4	S	35	SW	19	5	4	22	7.9	33		
Nashville	577	1001.7	1021.8	53	36	44.3	+5.7	77	1	14	29	0	11	37	76	5.10	+3.4	1.41	14	3	.3	T	8.3	S	36	NW	17	3	4	24	8.5	24		
TEXAS																																		
Abilene	1752	956.3	1018.3	64	39	51.7	+8.6	82	25	21	6	0	10	35	61	.71	-.25	.47	4	0	.0	0	13.9	SSW	47	S	24	7	7	17	6.9	56		
Amarillo	3590	889.3	1017.2	55	27	41.1	+8.0	77	25	6	4	0	20	23	55	.53	+0.02	.41	2	0	4.0	4	13.5	WSW	47	W	14	14	5	12	5.1	55		
Austin	515	998.0	1020.0	70	48	59.1	+9.6	80	25	32	5	0	1	48	72	.25	-1.82	.14	5	1	.0	0	10.0	S	34	NW	9	6	3	22	7.1	49		
Big Spring	2533	928.5	1018.0	65	38	51.4	+6.9	82	25	20	6	0	8	31	54	.09	-.42	.05	4	0	T	0	---	---	---	---	---	---	---	---	---	---	---	---
Brownsville	16	1015.9	1018.5	76	59	67.4	+7.6	83	22	42	29	0	0	59	83	.10	-1.71	.08	4	0	.0	0	14.1	SW	34	N	9	5	14	12	6.2	65		
Corpus Christi	40	1018.6	1019.6	74	55	64.4	+10.4	85	9	38	11	0	0	56	80	.22	-1.34	.15	5	0	.0	0	14.0	SSE	34	S	25	5	10	16	6.9	44		
Dallas	487	1000.7	1019.4	65	44	54.5	+9.1	83	19	27	23	0	7	41	65	.88	-1.51	.54	4	2	.0	0	10.9	S	38	S	24	7	9	15	6.6	61		
Del Rio	957	985.1	1020.0	71	47	59.2	+6.9	85	26	31	10	0	1	45	67	.14	-.42	.09	2	1	.0	0	8.2	E	40	NW	6	8	17	6.6	65			
El Paso	3920	883.2	1017.1	63	30	49.2	+5.6	75	25	19	5	0	12	26	44	.02	-.44	.02	1	1	T	0	8.4	N	38	W	21	10	8	13	5.6	72		
Fort Worth	688	994.9	1019.6	65	43	54.0	+9.6	84	19	25	23	0	7	39	64	.58	-1.47	.49	3	1	.0	0	14.4	S	*37	NW	5	10	6	16	6.5	---		
Galveston CO	7	-----	-----	67	57	62.4	+8.6	74	9	43	6	0	0	---	---	1.56	-1.85	.27	7	1	.0	0	13.8	---	---	---	---	---	---	---	---	---	---	
Galveston	7	1019.6	1020.5	68	57	62.1	+8.3	75	22	43	6	0	0	57	86	.10	-.24	.19	8	1	.0	0	12.9	SSE	42	N	9	---	---	---	---	---	---	
Houston CO	41	1014.9	-----	71	55	62.5	+9.8	79	19	37	6	0	0	---	---	1.21	-2.49	.61	9	1	.0	0	11.1	---	---	---	---	---	---	---	---	---	---	
Houston	41	1017.6	1020.4	71	53	62.0	+9.7	80	19	37	6	0	0	54	79	.86	-2.83	.27	9	0	.0	0	14.5	S	---	---	---	---	---	---	---	---	---	
Laredo	500	1003.1	1018.1	76	54	64.9	+9.2	88	26	39	11	0	0	51	68	.10	-1.02	.09	3	0	.0	0	11.9	SE	28	N	9	7	10	14	6.3	---		
Lubbock	3238	904.2	1017.8	58	30	44.4	+4.4	79	25	19	6	0	21	27	60	.98	+4.9	.53	3	0	T	1	12.2	SW	*32	NNE	27	9	8	14	5.9	---		
Palestine CO	491	1001.7	-----	67	48	57.4	+9.2	79	25	30	8	0	1	---	---	3.00	-.44	1.42	8	2	.0	0	8.8	---	---	---	---	---	---	---	---	---	---	
Port Arthur CO	5	1019.3	-----	69	55	62.3	+8.5	78	20	40	6	0	0	---	---	1.89	-1.81	1.10	8	1	.0	0	14.1	---	---	---	---	---	---	---	---	---	---	
Port Arthur	5	1019.6	1020.7	71	53	61.9	+8.6	81	20	33	11	0	0	56	89	3.09	-.27	1.86	10	1	.0	0	11.9	S	---	---	---	---	---	---	---	---	---	
San Angelo	1903	950.9	1018.8	66	41	53.8	+7.9	83	8	22	10	0	8	37	60	.08	-.82	.06	3	1	.0	0	10.2	SSW	*34	NNW	9	8	7	16	6.5	---		
San Antonio	782	994.2	1019.4	70	49	59.5	+7.2	81	20	31	11	0	2	46	69	.81	-.65	.62	6	1	.0	0	8.7	S	33	NE	9	4	9	18	7.3	48		
Victoria	109	1014.9	1019.6	72	53	62.7	+7.3	81	20	36	11	0	0	52	76	.22	-2.25	.09	5	0	.0	0	10.2	---	---	---	---	---	---	---	---	---	---	
Waco	504	1000.7	1019.3	68	36	56.8	+8.8	84	19	28	5	0	6	45	70	.59	-1.60	.35	3	1	.0	0	13.1	S	---	---	---	---	---	---	---	---	---	
Wichita Falls	1027	981.4	1018.8	61	37	49.2	+6.3	82	25	20	23	0	12	33	60	.71	-.41	.67	3	0	T	0	11.7	S	*33	W	19	10	9	12	5.6	---		
UTAH																																		
Milford	5028	844.6	1022.3	35	14	24.4	-1.9	53	31	-11	3	0	31	19	79	.83	+1.13	.42	8	0	13.9	8	9.0	SSW	*35	SSW	14	8	12	11	5.8	---		
Salt Lake City	4222	867.3	1020.0	35	19	27.0	-.5	47	24	-1	4	0	29	20	76	2.20	+1.22	.49	14	0	25.2	9	7.2	SSE	37	S	15	8	2	21	7.0	42		
VERMONT																																		
Burlington	331	1003.1	1018.4	30	12	20.8	+2.0	47	1	-9	8	0	30	11	74	1.64	-.12	.49	14	0	8.7	3	11.3	SSW	38	S	17	8	4	19	6.9	33		
VIRGINIA																																		
Cape Henry CO	16	1019.3	1020.0	54	39	46.4	+6.2	76	27	19	31	0	5	---	---	3.84	+6.9	1.41	6	0	T	0	14.4	---	---	---	N	6	7	9	15	6.6	55	
Lynchburg	947	986.1	1020.8	51	33	42.1	+6.8	76	27	13	30	0	15	29	65	4.37	+9.4	1.44	13	0	1.6	T	9.1	SSW	26	NW	*10	6	9	16	6.9	44		
Norfolk CO	11	1017.3	1020.6	55	39	46.8	+6.2	76	1	22	30	0	7	---	---	4.31	+1.21	1.53	9	---	T	0	10.4	---	---	---	NW	10	---	---	---	---	---	
Norfolk	25	1019.6	1020.6	54	36	45.1	+6.9	75	27	17	31	0	12	35	69	4.56	+1.46	1.58	9	---	T	0	11.1	S	---	---	---	---	---	---	---	---	---	
Richmond CO	162	-----	-----	53	35	43.5	+5.6	78	1	16	30	0	14	---	---	5.39	+2.18	1.94	12	---	1.0	1	---	---	---	---	---	---	---	---	---	---	---	
Richmond	160	1014.6	1021.3	52	33	42.4	+6.7	78	1	14	30	0	17	33	71	5.71	-.27	2.16	12	1	2.4	2	11.1	S	29	NW	10	9	6	16	6.5	45		
Roanoke	1192	978.0	1020.8	52	33	42.1	+4.3	78	1	11	30	0	17	29	65	4.44	+1.34	1.40	14	0	2.3	1	9.3	---	---	---	---	---	---	---	---	---	---	
Washington CO	72	-----	-----	47	34	40.6	+7.2	75																										



## CLIMATOLOGICAL DATA

Table 2-Continued

JANUARY 1952

State and station	Elevation (ground)	Pressure			Temperature										Precipitation						Wind				No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)	Possible sunshine							
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max 90° F or above Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days 0.1 inch or more With thunderstorms	Snow, Sleet, Hail	Max depth on ground	Average hourly speed	Prevailing direction	Fastest mile		to sunset										
																							Speed	Direction		Date			Clear	Partly cloudy	Cloudy				
																																0-3	4-7	8-10	0-10
PACIFIC AREA																																			
Canton Island	9	1007.5	1007.9	90	80	84.7	----	94	7	74	9	15	0	75	77	0.19	-----	0.07	5	0	0.0	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	5.7	---
Hilo	28	1014.2	1015.5	76	64	69.9	----	81	8	59	8	0	0	64	85	14.54	-----	2.78	27	0	.0	0	5.5	SW	37	SSE	19	1	9	21	8.4	20			
Honolulu CO	12	-----	-----	77	68	72.4	+1.5	80	18	62	23	0	0	---	---	3.83	+0.05	3.71	7	0	.0	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---	
Honolulu	7	1015.6	1016.2	78	67	72.6	----	82	26	60	28	0	0	61	70	4.45	----	4.16	8	0	.0	0	11.7	ENE	43	S	19	11	11	9	5.1	66			
Lihue	115	1010.5	1015.6	77	64	70.4	----	80	1	53	23	0	0	62	77	4.31	----	2.18	9	1	.0	0	11.9	ENE	34	SE	19	6	9	16	6.5	45			
Moan Is., Truk Gp	3	1010.2	1010.5	85	76	80.2	----	86	5	72	1	0	0	---	---	10.13	----	4.30	22	0	.0	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---		
Wake Island	9	1016.3	1016.7	81	73	76.8	----	83	28	67	14	0	0	64	67	.74	----	.33	9	0	.0	0	18.3	ENE	---	---	---	---	9	17	5	5.0	---		
Yap Island	51	1009.5	1011.4	85	76	80.4	----	87	25	73	7	0	0	---	---	4.25	----	1.30	20	0	.0	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	7.9	---	
WEST INDIES																																			
San Juan, P.R. CO	47	-----	-----	80	71	75.5	+5	85	7	68	17	0	0	---	---	3.70	-.45	1.14	19	0	.0	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	19	9	3
San Juan, P.R.	9	1015.2	1017.2	80	71	75.5	----	85	7	66	22	0	0	66	75	4.61	----	1.29	23	0	.0	0	8.4	ENE	38	NE	31	5	20	6	5.4	62			
ALASKA																																			
December 1951																																			
Anchorage	134	1008.5	1013.5	19	3	10.8	-3.0	38	31	-19	8	0	31	8	80	1.02	+1.8	.38	10	0	19.7	10	5.1	NE	35	S	11	4	5	22	8.0	26			
Annette Island	110	1008.2	1012.2	37	28	32.6	-3.2	48	10	10	30	0	24	27	76	6.90	-2.67	1.73	20	0	14.5	8	12.8	ESE	45	ENE	3	4	6	21	7.9	---			
Barrow	22	1012.5	1013.1	1	-16	-7.6	+4.2	29	26	-39	4	0	31	-17	63	.31	+0.8	.14	7	0	3.5	14	11.4	SW	70	WNW	27	**	**	**	**	---			
Bethel	21	1011.5	1012.9	17	4	10.9	+3.9	37	26	-24	6	0	31	9	87	6.17	+5.32	.82	23	0	47.0	16	12.4	S	45	SSE	30	5	5	21	7.7	---			
Cordova	40	1008.5	1010.2	30	11	20.5	-3.7	40	---	-2	17	0	29	19	88	5.56	-1.63	1.56	15	0	22.7	9	2.6	E	33	E	2	7	4	20	7.4	---			
Fairbanks	436	999.1	1017.6	2	-17	-7.5	+1.4	32	31	-15	8	0	31	-16	66	1.28	+7.8	.36	16	0	13.5	22	3.2	WSW	45	WSW	27	5	4	22	8.0	---			
Galena	120	1010.2	1015.2	-2	-22	-11.6	-2.7	35	30	-52	2	0	31	-18	---	.81	-.06	.25	14	0	8.9	20	6.0	SE	60	WSW	27	12	2	17	6.2	---			
Gambell	25	1008.8	1010.2	23	15	19.1	+9.4	35	26	-3	4	0	31	35	85	1.36	+3.9	.57	16	0	9.0	4	20.8	NNE	---	---	---	---	0	4	27	9.1	---		
Juneau	15	1013.0	1013.9	29	16	22.4	-5.7	46	10	-5	29	0	26	16	78	2.30	-1.83	.39	20	0	20.7	13	8.7	E	35	SE	5	6	4	21	7.6	22			
Kotzebue	10	1011.9	1012.5	2	-11	-4.5	-.8	33	26	-42	5	0	31	-12	73	.73	+4.0	.23	13	0	12.2	23	17.8	E	65	E	18	8	7	16	6.5	---			
McGrath	334	1002.7	1016.6	3	-16	-6.8	+.8	37	18	-49	6	0	31	-11	---	1.88	+6.0	.37	15	0	26.3	25	3.7	NW	47	S	30	11	4	16	6.3	---			
Nome	13	1010.8	1011.5	16	1	8.8	+1.3	34	26	-22	5	0	31	3	74	2.16	+1.05	1.09	11	0	22.3	15	12.3	ENE	45	NE	18	7	3	21	7.3	27			
Northway	1713	951.6	1019.3	-6	-24	-15.0	.0	20	27	-51	18	0	31	-24	63	.31	-.07	.08	15	0	7.7	14	3.4	NW	---	---	---	---	3	7	21	7.9	---		
St. Paul Island	22	1009.7	1010.8	35	28	31.4	+3.0	42	18	13	7	0	19	27	81	2.83	+5.7	.74	19	0	8.9	6	-----	-----	-----	-----	---	---	1	5	25	8.7	---		
Umiat	337	1003.9	1018.0	-7	-27	-17.3	+3.7	31	26	-51	10	0	31	---	---	.66	+3.6	.32	---	0	6.6	15	8.7	W	75	WSW	27	**	**	**	**	---			
Wales	9	1010.5	1011.2	16	3	9.1	+6.4	33	27	-15	9	0	31	---	---	.67	+0.4	.20	16	0	7.7	10	-----	-----	-----	-----	---	---	6	9	16	7.0	---		
Yakutat	28	1010.2	1011.2	30	16	23.2	-7.5	42	10	-3	25	0	28	21	85	5.78	-6.58	1.27	20	0	41.4	17	8.7	ESE	34	ESE	25	6	6	19	7.6	---			

Data from airport unless otherwise specified. CO indicates data from city office.

\* Data entered in column headed "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

† Other dates also.

‡ Peak gusts.

§ Max. 70° or above for Alaskan Stations.

\*\*Sun below horizon continuously.



## HEATING DEGREE DAYS

Table 3

(Base 65°F.)

JANUARY 1952

State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month
	This month	Period July through this month	Long term mean July through this month			This month	Period July through this month	Long term mean July through this month			This month	Period July through this month	Long term mean July through this month			This month	Period July through this month	Long term mean July through this month	
ALABAMA					INDIANA (Cont'd.)					NEW JERSEY					TEXAS (Cont'd.)				
Birmingham	422	1507	1584		Terre Haute	967	3256			Atlantic City	803	1314	2648		Amarillo	720	2465	2518	
Mobile (CO)	211	844	999		IOWA					Newark	898	2720	3065		Austin	234	911	1128	
Mobile	225	897			Burlington	1185	3823	3456		Trenton	879	2670	2845		Big Spring	421	1440	1714	
Montgomery (CO)	304	1127	1319		Charles City (CO)	1516	4775	4179		NEW MEXICO					Brownsville	82	266	440	
Montgomery	320	1200	1332		Davenport (CO)	1193	3800	3631		Albuquerque	800	2571	2729		Corpus Christi	128	461	651	
ARIZONA					Des Moines	1345	4253	3766		Clayton	850	3032	2900		Dallas	349	1281	1520	
Flagstaff	1208	4169	4026		Dubuque	1418	4623	4044		Raton	973	3616		Del Rio (CO)	218	785	1062		
Payson (CO)	793	2391			Keokuk (CO)	1069	3430	3326		Roswell	592	2105	2283		El Paso	432	1496	1690	
Phoenix (CO)	399	925	970		Sioux City	1454	4621	4091		NEW YORK				Fl. Worth	367	1287	1497		
Phoenix	414	1005			KANSAS					Albany	1196	4004	3729		Galveston (CO)	117	506	768	
Prescott	888	2703			Concordia (CO)	1049	3445	3200		Bear Mountain (CO)	1125	3620		Galveston	117	524			
Tucson	404	1022			Dodge City	893	3141	3025		Binghamton	1231	4089	3787		Houston (CO)	157	642		
Winslow	871	2752			Goodland	1040	3773	3320		Buffalo	1122	3633	3690		Houston	163	678	882	
Yuma	342	702	747		Topeka (CO)	989	3239	3055		New York (CO)	830	2574	2889		Laredo	114	423		
ARKANSAS					Topeka	1018	3320			La Guardia Field	870	2518		Lubbock	632	2118			
Ft. Smith	576	1999	2018		Wichita	879	2953	2797		Oswego	1155	3620	3828		Palestine (CO)	277	1060	1340	
Little Rock	529	1851	1879		KENTUCKY					Rochester	1149	3692	3673		Port Arthur (CO)	138	640	895	
Texarkana	397	1438			Lexington	816	2729	2778		Schenectady (CO)	1177	3785		Port Arthur	161	728			
CALIFORNIA					Louisville (CO)	798	2550	2621		Syracuse	1182	3701	3769		San Angelo	354	1233		
Bakersfield	549	1398	1400		Louisville	792	2650			NORTH CAROLINA				San Antonio	212	805	959		
Beaumont (CO)	658	1733			Pikeville (CO)	696	2268			Asheville (CO)	634	2291	2386		San Antonio	164	620		
Bishop	1066	2878	2673		LOUISIANA					Asheville	675	2354		Victoria	290	1119			
Blue Canyon	1096	3312			Baton Rouge	192	817	989		Charlotte	530	1775	1939		Waco	487	1703		
Burbank	451	1185			Lake Charles	154	701			Greensboro	633	2165	2306		UTAH				
Eureka (CO)	613	2720	2638		New Orleans (CO)	145	611	813		Hatteras	469	1182	1377		Milford	1252	4026		
Fresno	606	1593	1535		New Orleans	160	655			Raleigh (CO)	517	1706	1974		Salt Lake City (CO)	1078	3404	3273	
Los Angeles (CO)	371	923	736		Int. Airport, Moisant	145	649			Raleigh	560	1850		Salt Lake City	1170	3709	3542		
Los Angeles	385	883			Shreveport	327	1198	1387		Wilmington (CO)	399	1252	1433		VERMONT				
Mt. Shasta (CO)	1083	3447			MAINE					Winston-Salem	612	2101		Burlington	1361	4255	4379		
Oakland	568	1729	1737		Caribou	1681	5487			NORTH DAKOTA				VIRGINIA					
Red Bluff	711	1760	1647		Eastport	1264	4080	4470		Bismarck	1961	6130	5214		Cape Henry	567	1606	1910	
Sacramento (CO)	620	1700	1625		Greenville (CO)	1572	5225	5241		Devils Lake (CO)	1987	6508	5870		Lynchburg	701	2381	2385	
Sacramento	644	1704			Portland	1280	4096	4009		Fargo	1967	6340	5430		Norfolk (CO)	559	1607	1910	
Sandberg (CO)	921	2615			MARYLAND					Grand Forks	2028	6398	5765		Norfolk	609	1773		
San Diego	321	729	825		Baltimore (CO)	755	2284	2534		Pembina	1988	6350	5385		Richmond (CO)	657	2073	2273	
San Francisco (CO)	519	2027	1781		Baltimore	814	2567			Williston (CO)	1841	6063	5385		Richmond	692	2193		
San Francisco	549	1927	1886		Frederick	847	2722			OHIO				Roanoke	703	2388	2446		
San Jose	525	1426			MASSACHUSETTS					Akron	1050	3611	3476		WASHINGTON				
Santa Catalina	468	1346			Boston	997	3062	3221		Cincinnati (CO)	780	2582	2872		Ellensburg	1458	4417		
Santa Maria	500	1636			Milton	1088	3426			Cincinnati	872	2940		Kelso	884	3051			
COLORADO					Nantucket	929	2727	2923		Cleveland (CO)	975	3129	3340		North Head (CO)	768	3047	2832	
Alamosa	1462	5118			Pittsfield	1243	4209			Cleveland	1012	3337		Olympia	897	3118			
Colorado Springs	955	3658			ALPENA (CO)	1271	4474	4382		Columbus	918	3184	3131		Port Angeles	799	3427		
Denver	927	3515	3280		Detroit	1098	3589	3658		Dayton	971	3225	3158		Seattle (CO)	775	2595	2542	
Grand Junction	1171	3743	3506		Escanaba (CO)	1417	4927	4702		Sandusky (CO)	986	3203	3357		Seattle	880	3106		
Pueblo	879	3337	3280		Grand Rapids (CO)	1138	3752	3726		Toledo	1053	3574	3511		Spokane	1281	4310	3781	
CONNECTICUT					Grand Rapids	1194	4039			OKLAHOMA				Stampede Pass (CO)	1367	4381			
Bridgeport	972	2910			Lansing	1185	4062	3963		Oklahoma City (CO)	624	2172	2269		Stevenson (CO)	1043	3088		
Hartford	1053	3270	3384		Marquette (CO)	1398	4991	4702		Oklahoma City	637	2208		Tacoma (CO)	805	2851	2830		
New Haven	989	3021	3218		Muskegon	1173	4016			Tulsa	684	2287		Tatoosh Island (CO)	777	3429	3281		
DELAWARE					Sault Ste. Marie	1465	5315	5005		WEST VIRGINIA				Walla Walla (CO)	1051	3213	2988		
Wilmington	862	2664			Ypsilanti	1125	3724			Baker (CO)	1282	4302	4150	Yakima	1360	4055	3533		
DIST. OF COLUMBIA					MINNESOTA					Burns (CO)	1358	4394		CHARLESTON					
Washington (CO)	750	2304	2614		Duluth (CO)	1746	6052	5373		Eugene	789	2683		Charleston	722	2456			
Washington	747	2272			Duluth	1780	6146			Meacham	1242	4502		Elkins	894	3275	3300		
FLORIDA					International Falls	1990	6650			Medford	926	2865	2767	Huntington	652	2303			
Apalachicola	217	699	777		Minneapolis	1629	5077	4622		Pendleton	1109	3418	2498	Parkersburg (CO)	792	2678	2863		
Daytona Beach	149	368			Rochester	1590	5102			Portland (CO)	842	2540		Petersburg	817	2813			
Fort Myers	71	172	181		St. Cloud	1791	5702	5107		Portland	901	2807		WISCONSIN					
Jacksonville (CO)	190	598	737		St. Paul	1596	5003	4624		Roseburg (CO)	731	2343	2468	Green Bay	1492	4945	4439		
Jacksonville	216	668			MISSISSIPPI					Salem	816	2775		La Crosse (CO)	1441	4627	4335		
Key West (CO)	6	13	30		Jackson	331	1208	1400		Sexton Summit (CO)	1084	3528		La Crosse	1504	4854			
Key West	11	22			Meridian	334	1261	1417		Troutdale	911	2829		Madison (CO)	1346	4429	4211		
Melbourne	96	209			Vicksburg	317	1125	1318		PENNSYLVANIA				Madison	1374	4570			
Miami (CO)	43	85	105		MISSOURI					Allentown	1016	2373		Milwaukee (CO)	1248	4080	3921		
Int. Airport, Hialeah	316	975			Columbia	953	3139	2999		Curwensville	1171	4142		Milwaukee	1293	4279			
Miami Beach	21	39			Kansas City	958	3114	2963		Erie (CO)	1013	3176	3359	WYOMING					
Orlando	128	333			St. Joseph	1077	3512	3202		Harrisburg	938	3008	3075	Casper	1208	4506			
Pensacola (CO)	192	771	910		St. Louis (CO)	856	2794	2717		Park Place	1151	3830		Cheyenne	1127	4396	4155		
Tallahassee	196	706			St. Louis	896	2931			Philadelphia (CO)	817	2407	2663	Lander	1348	4776	4802		
Tampa	106	269	356		Springfield	8548													



## SEVERE STORMS

Table 4

JANUARY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Dunklin, Scott, Stoddard, Mississippi, New Madrid, southern Cape Girar- deau, How- ell, Oregon, and Ripley Counties, Mo.	1-4	Afternoon, 1st- morning, 4th	*60	130			\$1,000,000		Ice (glaze)	Ice collected on communications and power line wires, reaching damaging proportions during night of 1st. The coating reached a diameter of 2 inches near Charleston, with icicles on wires as much as 6 inches long and closely spaced. Stretched wires sagged to the ground, when they didn't break from their burden. In many cases poles gave way first. Failure of long distance lines isolated 41 communities. Power failures resulted in some unheated homes, unlighted streets, and delayed newspaper editions. The larger towns affected were Charleston, Malden, Sikeston, and Dexter. The estimated damage is necessarily a preliminary figure.
Hungry Horse Dam, Mont.	1						See remarks		Snow	Weight of snow caused collapse of 50 feet of roof of empty theater building; nearly a total loss.
Pennsylvania, central portion	1-2				4	35			Fog and drizzle	Fog-shrouded, wet highways, and resultant poor visibility responsible for series of auto crashes (one involved a horse and buggy).
Alexander, Pulaski, and Union Counties, Ill.	1 and 2						176,250		Ice (glaze)	Freezing rain or drizzle occurred almost continuously from evening of 1st through 2d. No excessive wind. Damage largely confined to utilities, although a few roofs collapsed.
Hanover, Pa.	2	Evening				4			Fog	Four persons injured in traffic accident in fog on country road.
Kentucky, western portion	2-3						°200,000		Ice (glaze)	Extensive damage to trees, power and telephone lines, and FM and TV antenna. Several houses damaged by falling trees and limbs. Ice on some roads made driving dangerous. Many industries and schools closed. Both the Kentucky Utilities and Jackson Purchase Rural Electric Cooperative Corp. said that ice conditions were the worst in their history. A loss of \$1,000,000 in wages was estimated.
Arkansas, northern portion	2, 3, and 4						°250,000		Ice (glaze) and sleet	An extensive storm of freezing rain and sleet covered much of northern Arkansas. An estimated \$100,000 damage to rural electric co-op power lines and \$77,000 to telephone lines. Other damage mostly to timber, shade trees, shrubs, etc. Ice did not accumulate on highways and roads. Traffic not hampered.
Wisconsin, southern portion	4	P.m.			3	See re- marks			Snow	From 3 to over 6 inches of snow fell in southern Wisconsin. Roads and walks became very slippery. More than 25 persons in Milwaukee admitted to hospital because of falls. Three persons killed in traffic accidents attributed to snow and poor visibility. Traffic hampered by slippery roads and streets, especially on hills.
Hungry Horse Dam, Mont.	7						See remarks		do	Weight of snow caused collapse of small plumbing shop roof. One car near a total loss.
Harrisburg, Pa.	9	Early morning				3			Sleet	Sleet-covered roads resulted in auto accidents.
New Orleans, La.	10	10:20 p.m.					10,000		Thunder- squall	Store windows smashed; trees uprooted and delimbed; power and communications lines disrupted.
Eureka Canyon, Santa Cruz County, Calif.	10-15								Rains	Eureka Canyon road blocked by numerous slides and fallen trees. Canyon residents marooned for about a week behind the slide.
Los Gatos, Santa Clara County, Calif.	11-12						5,000		Winds and rains	Strong winds uprooted trees and raised havoc with roofs. Damage estimated between \$4,000 and \$5,000 was felt by the new Multiple Copy Forms Company building when the entire tar paper covering on the plant roof blew off. Temporary damage to equipment was the least of the trouble according to James Fulk, president of the company, who stated that the greatest loss was felt in inventory stock.
Twin Bridges (40 miles east of Placerville in Nevada County), Calif.	11-14				2		See remarks		Avalanche	A heavy deposit of snow began slipping along the granite slope above the resort building-post office-store at Twin Bridges. It picked up momentum carrying with it topsoil, brush, etc., and swelled into an avalanche that roared down upon the building. The structure collapsed. Two persons trapped and killed in building.
Washington, Nevada County, Calif.	11-15						See remarks		Snow	Washington cut off from supplies. Three residents were in desperate need of medical care with no physician in community. Two houses collapsed under weight of accumulated snow and a third burned to

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JANUARY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
California, northern portion	11-15						See remarks		Wind and snow	ground because no water available to fight fire.  Electric power and telephone systems sustained heavy damage during the stormy period. Snow-weighted power lines snapped; high winds whipped telephone lines into a snarl; slides downed poles and high tension wires and towers.
Alviso, San- ta Clara County, Calif.	12-13								Rains	All but 25 of Alviso's 700 population were forced to leave their homes or were evacuated as the worst flood on record resulted in waters inundating town.
Santa Clara County, Calif.	12-15								Rains and winds	Major power failures and flooding affected large areas in Santa Clara County. Families were evacuated from many homes which were flooded. The telephone line to Lick Observatory at the peak of Mount Hamilton was cut and the winding mountain road blocked by snow drifts up to 3 feet in depth.
San Francis- co Bay area, Calif.	12								Rain	More than 2,000 persons fled their water swept homes as floods menaced low-lying areas in East Bay, Peninsula, and Marin.
Sonoma Coun- ty, Calif.	12-15						See remarks		Wind	In Sebastopol, 2 persons narrowly escaped injury when a 110-foot fir tree toppled through the roof of their home. Gale winds ripped down television antennae. Power failures in every community.
Contra Costa County, Calif.	12-15								Rain	Five creeks overflowed in Contra Costa County as a result of heavy rains. Thousands of residents sand-bagged homes and stores to keep flood waters away. Many families were evacuated. Concord threatened by floods when a 60-foot section of concrete lining of Contra Costa irrigation canal broke loose and wedged itself across waterway 3 miles east of Concord. Schools closed, underpasses flooded and commuters delayed.
Chester- Westwood area, Calif.	12-16						See remarks		Snow and wind	Heavy snow during period from 12th to 16th left Chester and Westwood with one of deepest snowfalls of record. In addition to heavy snow, gale winds drifted snow to block all roads to Chester and Westwood. Wind cut off communications, disrupted power service, and stranded snow plows in heavy drifts.
Island of Maui, Kaanapali, Hawaii	12						\$1,000		Wind	Roofs damaged.
Sabino Cany- on (near Tucson), Ariz.	13	12:30 p.m.					1,000		Thunder- showers	Flash flood coursed through Sabino Canyon Recreation- al area (about 6 miles long) as result of 2.35 inch rain at head of canyon. Flood waters covered several bridges, stranded motorists, and washed a truck off bridge.
San Carlos area, Ariz.	13	Afternoon					37,000		Rains	High waters in dry washes and in San Carlos River severely damaged large irrigation ditches from 10 miles north of San Carlos to Peridot. About 5 miles of 30-inch tile ditches ruined, and a diversion dam was washed out. Twenty-five dwellings in San Carlos temporarily flooded, some poultry lost along river bottoms. Approximately 2,500 acres inundated along about 15 miles of bottom land.
Sierra Ne- vada (near Donner Sum- mit), Calif.	13								Snow	Heavy snowfall trapped Southern Pacific's streamliner, City of San Francisco, for about a week. Road closed on 13th with 210 inches of snow on ground at Norden. Train stalled by a small slide ahead of train and then snowed in before it could get moving again. On 16th passengers were removed, and on 19th train was pulled out, with the line opened only for limited operations. This was first tieup of this road due to snowfall since winter of 1889-90 when it was closed for 2 weeks.
San Diego County and vicinity, Calif.	13-18				1		500,000		Rains	Housing units built on low ground sustained the great- est damage. At the peak of the flood conditions on the night of 17th 100 persons reported forced from their homes. Hundreds of homes were in need of repairs and newly-graded streets were eroded as a result of rains and flood waters. Along Tia Juana River approximately 700 persons were evacuated from homes.

See footnotes at end of table.



# SEVERE STORMS

Table 4-Continued

JANUARY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Southeastern Alaska, from Fred- erick Sound to Skagway and Cape Spencer	13-23						\$55,000 (within 20 mile radius of June- au)		Wind	An intense High over northwestern Canada and interior Alaska with deep storms in Gulf of Alaska resulted in steep pressure gradient and strong northwest winds from Copper River Valley to the Panhandle. The largest single damage reported was collapse of a cannery at Douglas, Alaska, on 21st. Other damage included broken windows, and damage to roofs and to transportation facilities due to drifting snow. Although the fastest mile of wind recorded at Juneau Airport was 47 m.p.h., extreme speeds as high as 75 m.p.h. were reported in Juneau.
Wisconsin, most of State	13-14	13th and morning of 14th			2	See re- marks			Fog and ice (freez- ing drizzle)	Heavy fog blanketed much of Wisconsin. Visibility reduced to 100 feet at times. Moisture from fog and drizzle froze, making roads and walks very slippery. Two persons killed in traffic accidents in Kenosha County attributed to poor visibility. More than 100 traffic accidents in Milwaukee. An unknown number of people injured from falling on slippery walks and streets.
Minnesota, extreme southern counties	14	Most of day					25,000		Ice (glaze), sleet, snow and wind	About 42 poles downed, and about 1,142 wire breaks occurred. Communication and electric power services disrupted; automobile traffic seriously delayed; most airlines cancelled flights; street car and train services somewhat delayed. Extremely icy walks, streets, roads, and highways resulted in numerous accidents to motorists and pedestrians. A Minneapolis-bound bus went into a ditch near New Ulm. Thickness of ice on wires varied from 1/8 to 1-3/4 inches in diameter. Ice first began to form on wires about 5 a.m. of 14th in western Pipestone County and remained on wires in some localities until 20th. Heaviest ice formation occurred in Pipestone-Redwood Falls area and in vicinity of Owatonna. Some damage to trees. Heavy snows accompanied by strong winds occurred at Duluth, while in extreme southern Minnesota lightning and thunder were reported.
South Dakota, eastern portion	14						70,000		Snow and ice (glaze)	Light to heavy rain and thunderstorms occurred over southeastern South Dakota early on 14th, changing to sleet and freezing rain, then to snow which moved north over eastern section. This caused one of the greatest ice storms in this section. Snow was heaviest at Huron, with 7 inches falling. Communication lines downed with over 1,000 breaks and 550 poles broken. Greater loss was avoided due to no wind to speak of accompanying storm. Ten South Dakota towns were still without service on 16th. Roads remained slick during week, due to some melting on 17th and 18th.
Pennsylvan- ia, south- eastern and south- central counties	15	5-10 p.m.			2	4	See remarks		Fog	Two truck drivers killed in a 3-truck collision on Pennsylvania Turnpike near the Denver Service station. One person injured in a 2-car crash in fog near Carlisle. Two trucks side-swiped near Mt. Holly Springs, with damage estimated at \$3,600. Three persons injured near Myerstown in a fog-shrouded accident.
Riverside County, Calif.	15-16						See remarks		Rains	Some homes flooded due to heavy rains. Two adobe houses in Casa Blanca collapsed as rains weakened their foundations. Some schools dismissed due to high water around buildings and some flooding inside.
Los Angeles area, Calif.	15-18				10		3,600,000	\$100,000	Rains and winds	Rains and flood water erosion, land slides, silting, flooding damages sustained in Los Angeles metropolitan area. Most severe damage occurred in Van Nuys, Reseda, Downey, Artesia, Hawaiian Gardens, Compton, Lynwood, Southgate, Lakewood, and Norwalk. Damages itemized as follows: buildings-\$1,000,000; autos-\$100,000; household furnishings-\$700,000; merchandise in stores-\$300,000; highways, bridges, etc.-\$1,500,000; crops-\$100,000.
Conneaut Lake, Pa.	17	8-9 p.m.	400	2	0	0	100,000		Tornado	Tornado moved northeastward through the northwestern part of Conneaut Lake town, crossed lake and damaged 2 cottages on east side. Several private garages blown down; some cars damaged; lumber yard had 2 storage buildings destroyed and lumber scattered even into the lake; prefabricated school building entirely demolished; many roofs and TV antennae damaged; large stained glass window in church blown in.
Brooke, Ohio, and Marshall Counties, W. Va.	17	10:45- 11:15 p.m.					Several thous- ands of dollars		Electri- cal, wind, and rain	Roofs lifted from several buildings; light and communication facilities temporarily disrupted; a few trees uprooted; windows and street lights smashed. Several homes damaged by lightning.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JANUARY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
McDowell and Mercer Counties, W. Va.	17-18	11 p.m. - 2 a.m.					Several thous- ands of dollars		Electri- cal, wind, and rain	Barn blown over in Mercer County. In Bluefield area, automobile damaged by falling tree; signs blown down. In Princeton area, bank building damaged by lightning; many power lines and poles blown down.
Upper Alle- gheny River, Pa.	18-20						See remarks		Winds	Winds with speeds as high as 80 m.p.h. caused damage to utility lines, trees, and roofs of houses in this area. Thermometer shelter blown over at Con- fluence Dam.
Hungry Horse Dam, Mont.	18						See remarks		Snow	Weight of snow caused collapse of 100 feet of Quonset- type warehouse.
Honolulu, Island of Oahu, Hawaii	19						Minor		Rain	Streets flooded.
Island of Kauai, Hawaii	19						Slight	Some	do	Some crop damage in Hanalei and Hanapepe Valleys. Portion of town of Waimea flooded; inhabitants tem- porarily evacuated from homes; damage not extensive.
Wisconsin	21-22				1				Snow	From 3 to 8 inches of snow fell in State. Many rural roads in northwestern Wisconsin temporarily closed to traffic. In city of Superior, all transportation badly hampered and all schools closed. In southern Wisconsin, freezing rain in addition to snow, made highways very slippery. One person died of a heart attack while shoveling snow.
Minnesota	21-22				3				Snow, wind, and cold wave	Traffic seriously delayed; secondary roads blocked in virtually all but extreme northern Minnesota; many schools closed; three fatalities and a number of in- juries indirectly attributed to storm. Northeast gales drifted snow badly in Duluth area where traf- fic was practically at a standstill. Snowfall heavy, except in extreme northern counties. Near- blizzard conditions reported in western and central counties.
South Dakota	21-22				8		\$50,000		Snow and wind	Winds of 65 m.p.h. and higher in some instances began on 21st in western South Dakota. The front and winds moved across the State during the day and night of 21st, reblocking roads. The front reached as far east as Huron by daybreak. The winds had lowered to 40 m.p.h. An additional 4 to 8 inches of snow on top of previous snow in eastern section drifted and blocked roads completely, as had been the case in the central section. The wind died down by morning of 23d. Eight lives were lost. Many persons suf- fered frost bite when they attempted to travel after storm had started. About 2,500 head of cattle died during storm. Rail traffic was moving by night of 23d. By 24th some highways were opened, at least to one-way traffic. Temperatures fell from a 10° to 30° high on 21st to zero to 20° below zero after storm struck.
Mitchell and Col- quitt Coun- ties, Ga.	22	7:40-8 a.m.	300- 400	8-10	0	8	100,800	\$500	Tornado	Storm began near Sale City, Mitchell County, moving northeastward through Poplar Arbor community, Col- quitt County, where most of property losses were concentrated. Six homes and 12 or more barns and other small buildings demolished, with light to moderate miscellaneous damage to other buildings, utility lines, etc. Many trees blown down, and several livestock killed by falling timbers or col- lapsing barns. Storm was observed to approach Pop- lar Arbor like rolling smoke and making a roaring sound like a freight train.
Alexander City, Ala.	22	A.m.			0	0	5,000		do	Damaged 4 homes, destroyed 9 buildings and damaged 6 buildings; 6 families affected.
Kenton, Har- din County, Ohio	22	2:30 p.m.					15,000		Wind	Strong winds swept down huge screen at a drive-in theater and damaged aluminum fence. Winds were as- sociated with a deep low pressure storm area that passed just to north of this area on same day.
Almyra to Stuttgart, Arkansas County, Ark.	26	3:30 p.m.			0	0	10,000	0	Tornadoes, hail, and rain	Two small tornadoes struck in vicinity of Almyra within 30 minutes of each other, causing consider- able damage to outbuildings, power and telephone lines, television antennae, roofs, and boats. Hail caused some damage to windows and car windshields. Heavy rain damaged interiors of buildings that suf- fered roof damage. Storms' paths northeastward.
Pensacola, Fla.	28	2:35 a.m.					2,200		Wind with thunder- storm	Storms of 28th associated with squall line oriented northeast-southwest that moved from west to east through northern Florida. Store front blown in. Trees broken or blown down in several sections of

See footnotes at end of table.



# SEVERE STORMS

Table 4-Continued

JANUARY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Forsyth, Monroe County, Ga.	28	4:40-4:45 a.m.	400	4	0	0	\$15,000	\$ 0	Tornado	city. Electric power services interrupted.  Stormy conditions of 28th occurred along a wide front of approaching cold air. Tornado moved eastward through Forsyth, demolishing a church and heavily damaging a warehouse. A number of house roofs damaged, television aerials bent or twisted, and other miscellaneous damage. Some trees and utility lines blown down.
Compass Lake (13 miles southeast of), Fla.	28	5:30-5:45 a.m.	35	**150	0	3	9,000	0	do	Storm moved east-northeastward. It destroyed home and furnishings, and carried an automobile over the tops of pine trees and dropped it upside down.
Albany, Dougherty County, Ga.	28	7-7:15 a.m.	100	1-2	0	1	10,000	0	do	Funnel cloud observed to dip within 50 to 100 feet of ground. Storm moved through northern section of city in northeastward direction; winds 60 m.p.h. Many trees blown down, blocking several streets, and knocking down utility lines extensively; nine main power lines and a telephone cable line downed, disrupting electric services and knocking out more than 600 telephones. Numerous house roofs and television aerials damaged, and a large 2-car garage blown over.
Poulan, Worth Coun- ty, Ga.	28	7:30 a.m.			0	0	5,000	0	do	Local storm of tornadic character moved northeastward. Church demolished. Light to moderate damages to several homes and smaller buildings. Some trees and utility lines blown down.
Moultrie, Colquitt County, Ga.	28	7:30-8 a.m.					5,000		Wind	Storm movement toward northeast. High winds caused widespread minor damages, with heavy damages to a drive-in theater and to roofs of two business houses. Other damages included utility lines, house roofs, plate glass windows, and numerous trees blown down or delimbed.
Tallahassee (4 miles north- northeast of), Fla.	28	7:50 a.m.	35	1½	0	0	10,000	0	Tornado	Storm moved east-northeastward. Concrete block garage partly demolished, sheds blown away, several homes damaged, signboards wrecked, and trees downed. Tallahassee Airport reported wind in gusts up to 50 m.p.h.
Tifton, Tift Coun- ty, Ga.	28	8:10-8:25 a.m.	400	Short	0	2	100,000	0	do	Moving northeastward through northeastern section of Tifton, a large number of homes and business houses and other property substantially damaged, with numerous smaller buildings and structures demolished. Much of damage caused by falling trees and rain on exposed stores and furnishings. One person injured in a blown-over trailer, the other from partial destruction of a service station.
Monticello Jefferson County, Fla.	28	8:15 a.m.					500		Wind with thunder- storm	High winds caused considerable damage to roofs of buildings and to power lines, and broke or blew down trees.
Fitzgerald, Ben Hill County, Ga.	28	8-8:30 a.m.					7,500		Wind	High winds struck in Fitzgerald business area, causing heavy damages to A.C.L. railroad building roof. Other damages, mostly minor, occurred to several house roofs and smaller buildings. A number of trees blown down and some utility lines downed.
Abbe Commu- nity, Ben Hill Coun- ty, Ga.	28	8-8:30 a.m.					2,500		Wind (torna- dic)	High winds, possibly tornadic, destroyed a farm house and two barns, with other light to moderate damages.
Swainsboro, Emanuel County, Ga.	28	8-8:30 a.m.			0	1	3,000	0	Tornado	Local storm of tornadic character, moving northeastward, demolished a farm house, causing injury to one person.
Madison County, Fla.	28	Morning			0	0	5,000		Wind	Wind blew off porch roof, blew down a tobacco barn, blew large tree down on a house crushing it, blew down depot shed, and disrupted electric services. Damage occurred in several localities in Madison County.
Pelham, Mitchell County, Ga.	28					3	1,000		do	Red Cross reported eight small buildings destroyed and two damaged; two homes damaged; three people injured; four families affected.

\* Miles instead of yards.

\*\* Yards instead of miles.

° Crop damage included with other property damage.



# SEVERE STORMS

Table 4-Continued

JANUARY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Errata and Additions:										
	October 1951									Change <u>Matanuska</u> in sixth from last line to <u>Metlakatla</u> .
	December 1951						change \$38,500 to 113,500			ADD: The fastest observed mile of wind at Farewell was 100 m.p.h., evening of December 27, 1951. In Fairbanks a laundry caught fire, and because of high winds, the fire could not be controlled. Loss estimated at \$60,000. Damage to a C-46 when a nose hangar blew loose and hit aircraft estimated at \$15,000. There was unknown damage to phone and power lines.



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

JANUARY 1952

The most outstanding flood in the country during January occurred along the Ohio River towards the close of the month. The rise was very rapid; at Pittsburgh, Pa., the river rose 8 feet in 14 hours. Flood stage was exceeded in the reach above Cincinnati, Ohio, by 6 to 8 feet and in the reach below from 0.7 foot to 9.8 feet.

**ST. LAWRENCE DRAINAGE.**—Three separate freshets occurred during January 1952 in the St. Lawrence drainage; namely, from the 1st to the 5th, from the 17th to the 22d, and from the 27th to the 29th. The damages were relatively minor.

**ATLANTIC SLOPE DRAINAGE.**—Slight overflows in the Susquehanna Basin during the month was due to light to moderate rain, snow melt, and ice jams. Rainfall was light on the 1st and 2d with flood stages being reached in the headwaters at Sherburne and Oneonta, N. Y., due mostly to snow melt. Moderate rains occurred on the 26th and 27th causing flood stages to be reached at Sherburne, Greene and Chemung, N. Y., on the 27th. Near Wrightsville, Pa., three families were forced from their homes as the ice-jammed Susquehanna River rose to a depth of 4 feet around their homes. Near Lock Haven, Pa., the river road was choked with blocks of ice for nearly a mile above the city due to the ice jam.

Heavy rains during January brought several small rises in the middle and upper reaches of the James River which culminated in minor flooding at and below Brems Bluff, Va., on the 29-30th.

There were 3 moderate rises on the Roanoke River during January. The first resulted from the general rains of December 20-21, 1951, which resulted in minor flooding at Williamston, N. C., from December 25 to January 5. The second rise resulted from the general rains of January 9 and 10 which averaged from 1 to 2 inches over the basin. The last rise resulted from the heavy rains (1.5 to 2.5 inches) of the 27-28th. This same storm also caused some flooding along the Cape Fear and Neuse Rivers. No damage was reported but the extended period of flooding on the lower Roanoke interfered with normal logging operations, thereby resulting in some economic loss.

Minor flooding occurred on the Altamaha River at Charlotte, Ga., between the 2d and 4th due to heavy rains in December. No damages were reported.

**EAST GULF OF MEXICO DRAINAGE.**—The minor flooding along the Apalachicola River at Blountstown, Fla., was due to the heavy rains in December. No damage was reported.

The Tombigbee River was falling at the beginning of the month except in the lower section which was cresting from the minor flood of late December. Heavy rains on the 22d, 27th and 28th caused additional minor overflows at Lock 3 (Whitfield, Ala.) from the 26th through the end of the month.

**UPPER MISSISSIPPI BASIN.**—Minor flooding was reported on the Illinois River at La Salle, Ill., on the 2d due to rapid snow melt in late December and at La Salle and Havana, Ill., from the 20th to the 28th due to additional snow melt and precipitation averaging 1/2 inch in the upper and middle basins.

The flooding along the Iowa River at Wapello, Iowa, during the last decade of the month was due to ice action. No damage of consequence resulted.

The Mississippi River above the mouth of the Missouri was frozen over most of the time. Ice gorges formed during warm periods at several points producing local flooding of minor consequence.

**MISSOURI BASIN.**—A heavy local shower (0.95 inch at Ida Grove, Iowa) on the 19th caused some overflow on Odebolt Creek. Some overflow occurred along the Little Sioux in the vicinity of Correctionville, Iowa, due to ice gorging. Some brief local gorging occurred along the Boyer River but no flooding of consequence occurred. Considerable ice reformed in the Boyer River by the end of the month.

At the close of January most of the snow had melted in the Black Hills section of South Dakota. In central and eastern South Dakota northwestward through North Dakota, the snow cover averaged 6 to 8 inches except for 12 to 15 inches in the central part of South Dakota in the vicinity of Pierre. At the close of the month the Missouri River ice was very rough and generally covered with snow above Chamberlain and from Chamberlain to Sioux City. Patches of open water had begun to show up.

**OHIO BASIN.**—Frequent precipitation occurred over the Ohio Valley during January, continuing the trend which persisted throughout most of the preceding month, but differing greatly in distribution and type. December precipitation was consistently heavier over the lower Ohio Basin with considerable snow over the northern tributaries. During January, however, precipitation was mostly in the form of rain and fairly evenly distributed until the last week when excessively heavy rain fell over the northern tributaries and upper reaches of the basin, resulting in flooding on many tributaries and in a major flood on the Ohio River.

As the month began, moderate flooding continued in the Wabash and Scioto Basins due to rapid snow melt, which had begun late in December, and due to some rainfall over these basins following the very mild temperatures on January 1. The Ohio River had fallen to moderate stages except in the portion at and below Dam 50 where flood or near flood stages still prevailed on a slow recession.

During the latter part of December 1951, ice gorges formed in the upper Allegheny River Basin, one between Lock 8, Mosgrove, Pa., and Lock 9, Rimerton, Pa., and another between Eagle Rock and Walnut Bend, Pa. The latter gorge, approximately 8 miles in length, jammed the Allegheny River and piled ice 25 feet high in some places near Henrys Bend, affecting cottages in that area. Above freezing weather for several days in late December combined with light rainfall caused the ice to crumble and move in places but there was no complete break up of gorge conditions as of December 31, 1951. On the morning of January 1, rainfall averaging about 0.25 inch was reported over the Allegheny Basin with snow cover ranging from 1 to 8 inches. With temperatures averaging in the middle forties, a rapid rise in the Allegheny River began to develop. During the day of January 1, the ice gorges broke and with the addition of another one-quarter inch of rain and melting snow, the Allegheny River was swollen as far north as Olean, N. Y., and rising rapidly on the morning of January 2. The Monongahela River Basin had less than 1 inch snow depth on the ground and although the rainfall over that basin averaged close to 1/2 inch as against the Allegheny's 1/4 inch on January 2, the gradual rise along the Monongahela offered no flood threat. The Ohio River at Pittsburgh reached a crest of 22.2 feet (flood stage 25 feet) at 10 p.m. on the 3d, being out of normal pool conditions for a period of 118 hours.



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The second rise on the Ohio during the month began on the 17th as a result of general moderate rainfall and continuing rains at 1 to 2-day intervals causing a rise in the river to a level of 10 to 15 feet below flood stage by the 24-25th. The river was beginning to recede above Portsmouth, Ohio, when the excessively heavy rains of the 26-28th occurred. Rainfall during this latter period averaged 2 inches over large areas north of the Ohio, 2.5 inches over the Muskingum Basin, and local amounts approached 3 inches, with unofficial reports of 5 inches. These rains also caused flooding on all northern tributaries where several approached record high stages locally. Sharp rises also occurred on all southern tributaries to near flood levels generally with the little Kanawha and Green Rivers exceeding flood stages slightly. In the Tennessee Basin, the Duck and Elk Rivers, the Chicamauga Creek, and the Tennessee River at Gilbertsville, Ky., reported light overflows.

A severe flood developed on the Ohio River after the heavy rain on the 26-27th. The rise was very rapid. Pittsburgh which was in normal pool conditions at 7 p.m. on the 26th had reached flood stage at 9 a.m. on the 27th, a rise of 8 feet in 14 hours. It crested at a stage of 29.73 feet at 1:30 a.m. on the 28th. It remained above flood stage for a period of 42 hours. The flood moved downstream with flood stages being exceeded by 6 to 8 feet at all communities as far downstream as Cincinnati, Ohio, and from 0.7 foot to 9.8 feet above flood stage in the reach below. Flood damage was light in Pittsburgh. Business firms in the lower triangle of the City were forced to pump out cellars and sub-basements as water backed up through sewers and drainage lines, and North Side residents suffered from water in basements. In Wheeling, W. Va., more than 18,000 people and 3,300 buildings were affected.

Flood losses along the Ohio were relatively light in comparison with past severe floods. The cold weather which set in on the 29th helped prevent crests from rising higher than actually occurred. A number of dwellings in the low sections of all towns along the river were flooded, but the amount of damage was comparatively light.

**WHITE AND RED BASINS.**—General rains on the first 4 days of the month resulted in storm totals of 2 to 5 inches over the White and Red Basins. These rains caused slight rises on the already high streams, resulting in flooding on the Sulphur River in Texas, Ouachita, White, Little Red and Black Rivers in Arkansas. Damages were negligible since the streams were already high and there was little agricultural activity.

**LOWER MISSISSIPPI BASIN.**—Light to heavy rain was reported over the St. Francis River on the 2d to the 4th which caused the river to rise to a stage of 18.9 feet (0.9 foot above flood stage) on the 5th. The precipitation averaged less than an inch over most of the area above Wappapello Dam and at and below Madison, Ark., except at Parma and St. Francis, Ark., where the precipitation totalled 5.65 and 4.89 inches, respectively. A secondary crest of 18.5 feet occurred on the 10-11th at St. Francis. The damage was negligible.

The Tallahatchie River continued falling during the first two decades of the month after cresting at a stage of 28.2 feet at Swan Lake, Miss., on New Year's Day. Heavy rains on the 21st-22d, 26-27th and 28th caused another rise to a stage of 28.1

feet at this point on February 8.

**COLORADO BASIN.**—Heavy rains on the 13th and 17th caused minor flooding along the Gila River in the Safford, Ariz., area and at Riverside, N. Mex. The precipitation on the 13th averaged 1.5 inches at intermediate levels of the upper Gila River drainage basin with headwater areas receiving as much as 3.2 inches with a major portion of it in the form of snow. This storm provided the stage for the flooding which followed after the storm of January 17 with saturated ground conditions at intermediate levels and a snow pack of 12 to 18 inches above seven thousand feet.

The storm on the 17th brought exceptionally deep layers of warm moist air into Arizona and the upper Gila River drainage, causing nearly 3 inches of rain to occur over a major portion of the upper reaches of the Gila River, particularly the headwaters of San Francisco River. As a result, the 12 to 18-inch snow cover in the high country was almost completely melted by the rains and mild temperatures, adding considerable volume to runoff into the main stem of the upper Gila River in New Mexico and into major tributaries feeding into the main river from the north. Precipitation along the lower levels of the drainage basin below approximately 6 thousand feet did not average much more than 1/2 to 3/4 of an inch.

The resultant damage from high water from San Jose, Calif., to Geronimo, Ariz., along the Gila River amounted to approximately \$32,000. Nearly 2,000 acres of land was inundated with the principal damage being done to cotton fields which were still incompletely picked. Some damage resulted to fences and levees.

**PACIFIC SLOPE DRAINAGE.**—Severe flooding occurred in the San Fernando Valley, in the southeastern part of Los Angeles County, the foothill canyon surrounding San Fernando Valley, and the Los Angeles, Calif., area due to the heavy rain from the 15th to the 18th.

Little overflow occurred on major streams, but there was considerable flooding from hillside canyons and in valleys where flood control projects have not been completed. Many creeks left their banks in Santa Barbara County, closing highways and the main railway line between Los Angeles and San Francisco.

The heaviest rain on the 15-16th fell over the area from Santa Maria to Los Angeles, Calif., with amounts in valleys ranging from 2 to slightly over 6 inches and up to around 9 inches in the Santa Barbara County mountains. Coastal and valley areas again received from 2 to 6 inches from the storm of the 17-18th with amounts of 4 to 7 inches in some mountain areas.

Ten deaths, believed due to drowning and directly attributable to the storm, occurred in Los Angeles County with one in Orange County and another in San Diego County. Most of these were caused by flood waters washing cars from highways. Eleven other deaths in Los Angeles County were indirectly attributable to the storm.

Flooding in the San Joaquin River Basin during January was confined principally to creeks, streams, and sloughs and was due to heavy rain on the 16th and 25th. No flooding was reported along the major rivers. Precipitation over the basin averaged 6.24 inches on the 16th and 3.78 inches on the 25th. Considerable grain that had been planted in the Tulare Lake Basin was destroyed. Several rural farm homes



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS--Continued

JANUARY 1952

were flooded during both storms from the overflowing Black Rascal Creek, north of Merced, Calif.

Precipitation until the 10th was not sufficient to bring more than slight rises to the rivers and streams in the Central Valleys of California. On January 11 a moderate crest developed on the upper Sacramento River and substantial rises occurred on

the Sierra and Coastal Range streams on the 12th. Rainfall on the 12th in the lower Sacramento Valley and the northern San Joaquin Valley was as much as 14% of the seasonal normal rainfall. This heavy rainfall caused considerable local flooding due to poor drainage. None of the major rivers and streams reached flood stage.



# FLOOD STAGE DATA

(All dates in January unless otherwise specified)

Table 5

JANUARY 1952

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
ST. LAWRENCE DRAINAGE	<i>Ft.</i>			<i>Ft.</i>	
St. Marys: Decatur, Ind.	13	Dec. 31 19 26	5 20 30	16.3 15.4 17.6	1 20 28
St. Joseph: Montpelier, Ohio	10	3 15 28	5 23 28	11.7 14.0 10.8	4 17 28
Maumee:					
Fort Wayne, Ind.	15	1 17 27	3 22 29	16.8 17.5 18.2	2 20 28
Defiance, Ohio	10	2 28	3 29	11.5 11.4	2 29
Napoleon, Ohio	10	28	29	10.7	29
Sandusky: Upper Sandusky, Ohio	13	26	28	14.7	27
ATLANTIC SLOPE DRAINAGE					
Chenango:					
Sherburne, N. Y.	8	1 27	1 27	8.1 8.4	1 27
Greene, N. Y.	8	27	27	8.4	27
Chemung: Chemung, N. Y.	12	27	27	12.2	27
Susquehanna: Oneonta, N. Y.	12	2	2	13.3	2
James:					
Bremo Bluff, Va.	19	29	29	20.0	29
Columbia, Va.	18	29	29	20.9	29
State Farm, Va.	12	29	30	13.5	29
Richmond, Va.	8	30	30	8.8	30
Roanoke:					
Randolph, Va.	21 *	28	30	22.0	29
Weldon, N. C.	31	29	Feb. 2	33.6	Feb. 1
Scotland Neck, N. C.	28	31	Feb. 4	29.3	Feb. 2
Williamston, N. C.	10	14 31	19 **	10.4 11.3	16 Feb. 5
Neuse:					
Neuse, N. C.	14	28	Feb. 2	16.0	31
Smithfield, N. C.	13	29	Feb. 3	16.0	31
Cape Fear, Lock No. 2, Elizabeth- town, N. C.	20	29	Feb. 2	26.0	31
Altamaha: Charlotte, Ga.	12	2	4	12.7	4
EAST GULF OF MEXICO DRAINAGE					
Apalachicola: Blountstown, Fla.	15	1	1	15.4	1
Tombigbee:					
Lock No. 4, Demopolis, Ala.	39	Dec. 22	5	49.0	Dec. 31
Lock No. 3, Ala.	33	Dec. 19 26	11 **	50.3 41.2	1 Feb. 2
Lock No. 2, Ala.	46	Dec. 24	5	51.5	1
Lock No. 1, Ala.	31	Dec. 25	9	35.1 34.9	Dec. 31 3
MISSISSIPPI SYSTEM Upper Mississippi Basin					
Iowa: Wapello, Iowa	10	21 27	24 27	11.4 10.1	21-24 27
Illinois:					
La Salle, Ill.	20	2 20	2 22	20.7 21.0	2 21
Havana, Ill.	14	24	28	14.1	25
Mississippi:					
Keithsburg, Ill.	12	24 26	24 26	12.1 12.1	24 26
Louisiana, Mo.	15	25 30	27 **	16.3 17.1	26 Feb. 1
Ohio Basin					
Allegheny:					
Lock No. 7, Kittanning, Pa. (Upper gage)	23	27	27	23.1	27
Lock No. 5, Schenley, Pa. (Upper gage)	21	27	28	23.8	27
MISSISSIPPI SYSTEM (Cont'd.) Ohio Basin (Cont'd.)					
Allegheny: (Cont'd.)					
Lock No. 4, Natrona, Pa. (Upper gage)	20	27	28	23.4	27
Lock No. 3, Acmetonia, Pa. (Upper gage)	20	27	28	22.0	27
Lock No. 2, Sharpsburg, Pa. (Upper gage)	23	27	28	23.4	27
Tygart:					
Dailey, W. Va.	9	27	28	10.3	28
Philippi, W. Va.	17	27	28	17.8	28
Monongahela:					
Lock No. 4, Charleroi, Pa. (Upper gage)	24	27	28	25.8	27
McKeesport, Pa.	12	27	29	13.7	27
Lock No. 2, Braddock, Pa. (Upper gage)	26	27	29	28.1	28
Muskingum:					
Lock No. 10, Zanesville, Ohio	25	27	28	29.5	27
Lock No. 7, McConnelsville, Ohio	22	27	29	28.5	28
Little Kanawha:					
Glenville, W. Va.	23	28	28	25.2	28
Creston, W. Va.	20	28	28	21.0	28
Hocking:					
Enterprise, Ohio	12	26	28	14.4	27
Athens, Ohio	17	27	29	18.3	28
Olentangy: Delaware, Ohio	9	18	18	9.6	18
Paint Creek: Bourneville, Ohio	10	3 5 26	3 5 29	11.7 11.5 14.4	3 5 27
Scioto:					
La Rue, Ohio	11	1 17 26	1 18 28	11.1 13.9 14.4	1 18 27
Prospect, Ohio	10	2 18 27	2 19 30	10.3 11.9 13.1	2 19 28
Circleville, Ohio	14	1 19 27	3 21 30	15.6 14.4 22.5	2 19 28
Chillicothe, Ohio	16	27	30	26.8	28
Piketon, Ohio	15	1 27	5 31	19.8 27.0	4 29
Little Miami: Kings Mills, Ohio	17	27	28	19.8	27
Whitewater: Brookville, Ind.	20	26	27	24.5	27
Green:					
Munfordville, Ky.	28	29	30	28.4	30
Lock No. 4, Woodbury, Ky.	33	6 29	7 **	33.7 ----	7 --
Lock No. 2, Rumsey, Ky.	34	Nov. 27 Nov. 27	17 **	41.8 41.1 ----	Dec. 27 9 --
West Fork:					
Muncie, Ind.	5	27	28	7.8	27
Anderson, Ind.	10	27	28	13.9	28
Noblesville, Ind.	14	28	29	14.9	28
Spencer, Ind.	14	27	Feb. 1	18.9	28
Elliston, Ind.	18	28	**	24.2	30
Newberry, Ind.	18	31	31	18.4	31
Edwardsport, Ind.	12	Dec. 26 20 27	9 24 **	16.2 16.1 13.9 ----	Dec. 28 5 22 --
East Fork:					
Columbus, Ind.	10	27	29	16.0	28
Seymour, Ind.	14	27	**	18.6	28
Bedford, Ind.	20	30	Feb. 3	25.7	31



# FLOOD STAGE DATA

(All dates in January unless otherwise specified)

JANUARY 1952

Table 5-Continued

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)					
Ohio Basin (Cont'd.)					
East Fork: (Cont'd.)					
Williams, Ind.	10	31	Feb. 2	13.3	31
White: Petersburg, Ind.	16	Dec. 25	10	17.3	Dec.30-31
		29	**	18.3	6
				----	--
Wabash:					
Bluffton, Ind.	10	2	3	10.6	2
		19	20	11.3	20
		27	30	12.3	29
Wabash, Ind.	12	1	3	18.0	1
		17	21	16.9	20
		27	30	19.1	27
Lafayette, Ind.	11	1	5	17.7	3
		18	23	16.2	21
		27	Feb. 1	19.0	29
Covington, Ind.	16	1	6	20.7	4
		19	24	19.3	22
		28	Feb. 2	21.9	31
Montezuma, Ind.	14	1	7	18.6	5
		19	**	18.8	28
Terre Haute, Ind.	14	2	8	15.9	6-7
		23	**	16.2	30
Mt. Carmel, Ill.	17	5	10	17.8	8
		31	**	----	--
Cumberland: Williamsburg, Ky.	21	23	24	21.5	23
South Chickamauga Creek: Chickamauga, Tenn.	10	10	11	11.4	10
		22	24	11.4	23
Elk: Fayetteville, Tenn.	659	27	27	662.4	27
Duck:					
Shelbyville, Tenn.	719	27	28	722.7	27
Columbia, Tenn.	32	28	30	33.5	29
Centerville, Tenn.	22	29	31	22.6	30
Tennessee: Gilbertsville, Ky.	31	Dec. 9	18	40.0	Dec. 30
		24	**	----	--
Ohio:					
Pittsburgh, Pa.	25	27	29	29.7	28
Dashields Dam, Pa. (Upper gage)	26	27	29	30.4	28
Montgomery Dam, Pa. (Lower gage)	32	27	29	39.4	28
Dam No. 7, Midland, Pa.	30	27	30	41.7	28
Dam No. 8, Newell, W. Va.	32	27	29	40.3	28
Dam No. 9, New Cumberland, W. Va.	34	27	29	39.9	28
Dam No. 10, Steubenville, Ohio	33	27	29	41.2	28
Dam No. 11, Wellsburg, W.Va.	32	27	30	41.6	28
Dam No. 12, Wheeling, W. Va.	36	27	30	44.0	28
Dam No. 13, McMechen, W. Va.	37	27	30	46.8	28
Dam No. 15, New Martinsville, W. Va.	42	28	30	43.8	29
Marietta, Ohio	35	28	31	43.8	29
Parkersburg, W. Va.	36	28	31	43.9	29
Dam No. 22, Ravenswood, W. Va.	44	28	31	49.6	30
Point Pleasant, W. Va.	40	28	Feb. 2	48.3	30
Gallipolis Dam, Hogsett, W. Va.	50	29	Feb. 1	53.9	30
Dam No. 28, Huntington, W.Va.	50	29	Feb. 2	54.3	30
Dam No. 29, Ashland, Ky.	51	29	Feb. 2	58.0	30
Dam No. 30, Greenup, Ky.	52	29	Feb. 2	58.7	31
Portsmouth, Ohio	50	29	**	56.9	31
Dam No. 33, Maysville, Ky.	50	29	**	56.9	31
Cincinnati, Ohio	52	30	**	57.0	Feb. 2
Dam No. 39, Markland, Ind.	46	31	**	50.0	Feb. 2
Tell City, Ind.	38	6	12	41.1	9
		29	**	----	--

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)					
Ohio Basin (Cont'd.)					
Ohio: (Cont'd.)					
Dam No. 47, Newburgh, Ind.	38	5 27	14 **	43.5 ---	10 -
Dam No. 48, Henderson, Ky.	38	6 29	15 **	42.7 ---	11 -
Mt. Vernon, Ind.	35	6 29	15 **	40.0 ---	12 -
Dam No. 49, Uniontown, Ky.	37	7 30	16 **	41.2 ---	12 -
Shawneetown, Ill.	33	Dec. 26 27	17 **	41.3 ---	13 -
Dam No. 50, Fords Ferry, Ky.	34	Dec. 13 26	18 **	43.8 ---	13 -
Dam No. 51, Golconda, Ill.	40	10	15	41.4	13, 14
Paducah, Ky.	39	12	15	39.7	14
Dam No. 52, Brookport, Ill.	37	8 28	17 **	41.5 ---	14 -
Dam No. 53, Mound City, Ill.	42	9 29	17 **	45.5 ---	14 -
Cairo, Ill.	40	11 29	17 **	42.4 ---	15 -
Black: Black Rock, Ark.	14	3	17	21.6	5
Little Red: Judsonia, Ark.	30	3	7	34.9	6
White:					
Augusta, Ark.	32	7	13	32.3	10
Georgetown, Ark.	21	6	17	22.9	8
Des Arc, Ark.	24	7	18	25.7	10
Clarendon, Ark.	26	Dec. 3	29	28.8	13
St. Charles, Ark.	25	Dec. 8	31	26.8	16
Red Basin					
Ouachita:					
Arkadelphia, Ark.	17	4	6	21.8	5
Camden, Ark.	26	7	13	29.2	9
Sulphur:					
Hagansport, Tex.	38	4	4	38.4	4
Naples, Tex.	22	8	11	24.0	9
Lower Mississippi Basin					
St. Francis: St. Francis, Ark.	18	4	13	18.9 18.5	5 10-11
Tallahatchie: Swan Lake, Miss.	26	Dec. 24 29	12 **	28.2 28.1	1 Feb. 8
GULF OF CALIFORNIA DRAINAGE					
Colorado Basin					
Gila: Riverside, N. Mex.	8	18	19	9.5	19
PACIFIC SLOPE DRAINAGE					
San Joaquin Basin					
Chowchilla:					
Berenda Slough, Calif.	6	--	--	6.4 6.8	16 25
Ash Slough, Calif.	4.7	--	--	4.7	25
Sacramento Basin					
Sacramento:					
Moulton Weir	76.7	15 25	16 26	77.2 77.1	15 26
Colusa Weir	61.8	12 25	20 29	64.9 64.5	16 26
Tisdale Weir	45.5	7 24	24 **	46.5 48.3 48.3	9 16 26
Knights Landing, Calif.	38	15	16	38.1	16
Fremont Weir	33.8	13 25	23 **	36.4 36.0	16 27

\* Provisional.  
\*\* Continued at end of month.



# RADIOSONDE DATA

Average monthly values

Table 20

JANUARY 1952

ALBUQUERQUE, N. MEX. ( 839 MB. )				ATLANTA, GA. ( 986 MB. )				BIG SPRING, TEX. ( 928 MB. )				BISMARCK, N. DAK. ( 956 MB. )				BOISE, IDAHO ( 916 MB. )				BROWNSVILLE, TEX. (1018 MB. )				BUFFALO, N. Y. ( 991 MB. )					
Standard pressure surface (mb.)																													
	Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	1,620	4.4	51	31	307	9.5	73	31	784	10.3	47	31	505	-17.8	79	31	868	-3.8	82	31	6	18.6	82	31	221	-2.3	78	
1,000	31	158			31	189			31	150			31	163			31	169			31	161	18.7	79	31	150	-6.7		
950	31	591			31	625	10.1	64	31	585			31	554	-16.8	71	31	583			31	606	17.2	74	31	560	-3.4	75	
900	31	1,042			31	1,068	9.1	59	31	1,038	11.9	42	31	964	-10.7	61	31	1,009	-2.0	72	31	1,062	15.3	69	31	984	-4.5	71	
850	31	1,510	-2.3		31	1,542	8.3	57	31	1,516	11.7	33	31	1,406	-7.1	57	31	1,463	-2.9	64	31	1,546	14.6	52	31	1,434	-5.2	65	
800	31	2,005	3.6	42	31	2,041	6.7	53	31	2,021	9.7	30	31	1,878	-7.3	54	31	1,942	-5.1	62	31	2,058	14.0	36	31	1,910	-6.2	57	
750	31	2,530	1.0	41	31	2,575	4.3	50	31	2,556	6.3	34	31	2,385	-8.8	54	31	2,453	-7.8	65	31	2,608	12.1	26	31	2,420	-7.3	51	
700	31	3,077	-2.5	45	31	3,127	1.6	42	31	3,116	3.0	34	31	2,911	-11.5	55	31	2,980	-10.9	66	31	3,174	8.7	25	31	2,949	-9.3	48	
650	31	3,663	-6.1	43	31	3,726	-1.7	41	31	3,715	-7.0	36	31	3,480	-15.5	53	31	3,553	-14.6	65	31	3,789	4.9	23	31	3,524	-12.3	46	
600	31	4,284	-9.7	37	31	4,354	-5.6	38	31	4,347	-4.4	37	31	4,077	-18.3	51	31	4,148	-17.8	60	31	4,430	0.9		31	4,127	-15.4	45	
550	31	4,952	-13.4		31	5,034	-9.5	33	31	5,030	-8.6	39	31	4,726	-22.3	46	31	4,801	-21.3	54	31	5,130	-3.5		31	4,785	-19.3	47	
500	31	5,671	-17.6		31	5,761	-14.0		31	5,760	-13.3	37	31	5,415	-27.2	47	31	5,491	-26.0	53	31	5,871	-8.2		30	5,480	-23.6	46	
450	30	6,455	-22.3		31	6,557	-18.9	32	31	6,560	-18.7	38	31	6,171	-32.4	48	31	6,249	-31.4	53	31	6,691	-13.9		29	6,240	-28.9	45	
400	30	7,308	-27.4		31	7,420	-25.1		31	7,424	-24.5	43	31	6,986	-38.5		31	7,071	-37.1	52	31	7,565	-20.4		29	7,066	-34.4	47	
350	29	8,254	-34.1		31	8,376	-32.3		31	8,383	-31.3	43	31	7,890	-45.0		31	7,982	-43.3		31	8,539	-27.5		29	7,988	-40.4		
300	29	9,317	-41.5		30	9,444	-40.1		31	9,458	-38.9		30	8,904	-51.7		30	9,005	-49.1		30	9,628	-35.7		26	9,022	-46.5		
250	29	10,530	-49.8		27	10,657	-49.6		31	10,684	-47.9		30	10,071	-56.1		30	10,187	-53.7		30	10,869	-45.5		23	10,208	-52.6		
200	28	11,969	-56.1		25	12,084	-57.8		31	12,122	-57.5		29	11,489	-54.7		28	11,616	-52.5		30	12,319	-56.9		16	11,629	-53.6		
175	25	12,824	-58.3		21	12,914	-60.5		31	12,957	-61.2		29	12,345	-53.8		28	12,481	-51.2		30	13,154	-52.2		15	12,487	-52.1		
150	22	13,786	-60.2		20	13,866	-62.1		31	13,906	-64.4		29	13,334	-54.1		26	13,489	-52.2		29	14,098	-67.0		15	13,479	-53.7		
125	20	14,771	-62.9		17	14,977	-64.6		27	15,008	-66.6		28	14,429	-55.0		23	14,644	-53.9		25	15,195	-74.8		12	14,653	-55.4		
100	18	15,783	-66.2		11	16,328	-66.8		25	16,344	-69.8		24	15,928	-56.0		22	16,094	-55.8		20	16,507	-74.8		9	16,047	-54.8		
80	16	17,627	-66.5		6	17,677	-65.6		21	17,666	-70.7		19	17,356	-56.9		20	17,517	-56.4		14	17,804	-74.3						
60	13	19,375	-62.6						15	19,387	-64.7		14	19,178	-58.3		16	19,358	-56.4		8	19,499	-68.3						
50	12	20,509	-60.2						13	20,496	-63.4		12	20,341	-57.3		9	20,534	-56.9		5	20,602	-63.7						
40	9	21,903	-58.7						7	21,875	-61.8		7	21,769	-57.8		7	21,956	-57.2										
30	6	23,711	-55.8																										

BURRWOOD, LA. (1021 MB. )				CAMAGUEY, CUBA (1005 MB. )				CARIBOU, ME. ( 993 MB. )				CHARLESTON, S. C. (1021 MB. )				COLUMBIA, MO. ( 991 MB. )				DODGE CITY, KANS. ( 925 MB. )				EL PASO, TEX. ( 883 MB. )					
	Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	29	3	16.2	92	25	122	17.8	90	31	191	-12.1	73	31	13	11.3	78	31	239	0.8	68	31	792	1.5	55	31	1,195	11.1	41	
1,000	29	180	18.6	80	25	169	18.5	86	31	136	-15.5		31	187	13.5	69	31	160			31	153			31	138			
950	29	626	16.1	74	25	613	17.9	76	31	534	-10.7	70	31	624	11.7	65	31	576	.5	61	31	574			31	581			
900	29	1,078	13.9	63	25	1,073	15.6	70	31	947	-10.5	66	31	1,069	9.9	61	31	1,007	1.1	55	31	1,015	4.7	40	31	1,041			
850	29	1,558	11.9	59	25	1,556	13.9	48	31	1,386	-10.7	64	31	1,543	7.8	53	31	1,467	1.2	48	31	1,481	5.1	32	31	1,515	11.8	35	
800	29	2,064	9.9	51	25	2,067	13.3	27	31	1,852	-11.0	56	31	2,041	6.5	47	31	1,954	-1.45		31	1,975	4.1	29	31	2,019	8.9	36	
750	29	2,603	9.0	28	25	2,612	11.1		31	2,355	-12.0	52	31	2,576	4.6	40	31	2,474	-2.1	49	31	2,500	1.0	31	31	2,556	5.7	38	
700	28	3,167	6.4		25	3,180	7.8		31	2,873	-13.7	51	31	3,129	1.8	36	31	3,014	-4.7	46	31	3,048	-2.6	33	31	3,111	2.2	39	
650	28	3,775	2.9		24	3,794	4.6		31	3,442	-16.4	50	31	3,724	-1.8	35	31	3,601	-7.6	41	31	3,603	-6.2	34	31	3,709	-1.4	41	
600	28	4,414	-1.1		23	4,437	1.1		31	4,031	-19.1	45	31	4,355	-5.7	37	29	4,211	-11.2	40	30	4,252	-9.9	36	31	4,338	-5.2	33	
550	27	5,102	-5.6		23	5,138	-2.9		31	4,680	-22.6	44	31	5,032	-9.3	36	29	4,879	-15.4	41	29	4,918	-14.3	36	31	5,018	-9.3		
500	27	5,842	-10.2		22	5,882	-7.1		31	5,368	-26.6	45	31	5,761	-14.5	37	29	5,587	-19.9	43	29	5,630	-19.0		30	5,750	-13.4		
450	27	6,649	-15.4		22	6,703	-12.7		31	6,125	-31.1	42	31	6,559	-19.4	40	29	6,370	-24.8		29	6,308	-23.6		30	6,547	-18.1		
400	26	7,526	-21.5		22	7,585	-18.9		31	6,949	-36.2		31	7,419	-25.3	38	29	7,209	-30.3		29	7,259	-29.1		27	7,417	-23.7		
350	26	8,495	-28.9		19	8,565	-26.1		31	7,863	-42.2		31	8,374	-32.4	40	29	8,146	-36.3		26	8,202	-35.6		28	8,380	-30.3		
300	25	9,582	-36.8		18	9,666	-35.0		31	8,891	-47.9		31	9,443	-40.2		29	9,198	-43.6		14	9,233	-44.5		28	9,459	-37.8		
250	24	10,820	-46.2		13	10,923	-44.0		30	10,086	-52.2		31	10,652	-49.3		27	10,414	-50.8		11	10,427	-51.6		28	10,690	-47.1		
200	24	12,269	-56.2		11	12,394	-54.9		28	11,513	-53.2		29	12,091	-577														



# RADIOSONDE DATA

Average monthly values

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Table 20-Continued

HILO, T. H. (1014 MB.)				INTERNAT. FALLS, MINN. ( 972 MB.)				JOLIET, ILL. ( 997 MB.)				LAKE CHARLES, LA. (1021 MB.)				LANDER, WYO. ( 825 MB.)				LAS VEGAS, NEV. ( 941 MB.)				LITTLE ROCK, ARK. (1011 MB.)				
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	9	21.8	83	31	361	-17.3	75	31	179	-3.5	84	31	5	15.5	86	31	1,696	-6.3	55	31	660	5.2	57	31	79	8.9	77
1,000	31	129	21.1	83	31	148			31	150	-7.7		31	177	16.1	76	31	151			31	158			31	167	9.1	69
950	31	575	17.9	85	31	539	-15.4	71	31	559	-4.0	77	31	618	14.5	74	31	571			31	582	3.3		31	595	9.2	66
900	31	1,033	14.9	86	31	943	-13.3	68	31	983	-2.8	62	31	1,069	12.6	67	31	1,003			31	1,026	6.5	42	31	1,041	9.3	61
850	31	1,516	12.2	86	31	1,381	-10.8	56	31	1,436	-2.8	54	31	1,548	11.0	61	31	1,456			31	1,492	3.6	42	31	1,515	8.4	54
800	31	2,023	10.6	76	31	1,847	-10.9	53	31	1,916	-4.0	49	31	2,053	9.8	46	31	1,934	-2.9	46	31	1,982	1.1	40	31	2,014	6.6	52
750	31	2,571	9.3	56	31	2,345	-12.3	47	31	2,429	-6.0	44	31	2,594	8.1	37	31	2,451	-4.3	42	31	2,505	-1.2	35	31	2,548	4.2	51
700	31	3,131	7.2	42	31	2,866	-14.2	44	31	2,960	-8.1	47	31	3,154	5.5	28	31	2,985	-7.4	42	31	3,046	-4.2	30	31	3,100	1.2	44
650	31	3,741	4.3		31	3,433	-16.7	45	31	3,507	-11.1	42	31	3,761	2.1	28	31	3,562	-11.2	42	31	3,631	-7.5	31	31	3,698	-2.2	39
600	31	4,385	1.1		31	4,023	-20.1	48	31	4,143	-14.5		31	4,397	-1.9	31	31	4,168	-12.0	42	31	4,246	-10.9	32	31	4,325	-5.5	35
550	31	5,082	-3.0		30	4,661	-24.0	50	31	4,799	-18.3	35	31	5,086	-6.1	29	31	4,825	-19.8	42	31	4,913	-15.0	31	31	5,006	-9.9	37
500	31	5,829	-7.5		30	5,350	-28.2	48	31	5,502	-22.5		31	5,822	-10.6		31	5,521	-24.5	40	31	5,625	-18.8		29	5,733	-14.1	41
450	31	6,649	-12.8		30	6,099	-33.6	47	31	6,271	-27.8		31	6,632	-15.7		31	6,284	-29.9	42	31	6,405	-24.1		29	6,532	-19.3	40
400	31	7,531	-18.4		29	6,922	-39.2		31	7,104	-33.6		31	7,502	-22.3		31	7,110	-35.6		31	7,253	-30.1		28	7,398	-25.2	44
350	31	8,514	-25.4		28	7,826	-45.8		30	8,032	-39.9		31	8,468	-29.2		31	8,028	-41.4		31	8,191	-36.8		28	8,354	-31.8	47
300	31	9,615	-33.1		28	8,837	-52.4		29	9,072	-45.9		31	9,549	-37.6		31	9,059	-48.2		31	9,243	-43.3		28	9,426	-39.8	
250	31	10,872	-42.5		27	10,006	-56.2		26	10,271	-53.0		31	10,781	-46.7		31	10,243	-53.4		31	10,451	-50.1		28	10,647	-48.9	
200	31	12,349	-52.4		22	11,442	-54.1		21	11,683	-55.3		29	12,223	-57.0		29	11,668	-54.3		31	11,892	-54.4		24	12,092	-57.4	
175	29	13,197	-58.4		20	12,301	-52.7		20	12,538	-55.9		28	13,065	-61.9		29	12,525	-53.5		31	12,745	-55.6		21	12,927	-60.4	
150	26	14,160	-64.3		19	13,295	-52.6		18	13,508	-55.6		28	14,010	-65.4		27	13,517	-53.5		31	13,724	-57.1		20	13,880	-62.5	
125	22	15,280	-70.6		18	14,472	-53.5		13	14,657	-57.4		26	15,109	-67.9		22	14,683	-55.7		29	14,863	-59.8		19	15,000	-63.5	
100	14	16,603	-77.6		13	15,914	-55.4		11	16,043	-58.3		21	16,448	-71.3		20	16,106	-57.1		27	16,336	-62.3		16	16,344	-66.6	
80	11	17,858	-80.1		10	17,342	-56.4		9	17,445	-58.9		22	17,758	-72.4		16	17,524	-57.7		26	17,616	-62.6		12	17,691	-67.2	
60	5	19,503	-82.1		8	19,163	-56.2		6	19,278	-58.7		14	19,485	-66.1		10	19,324	-57.7		19	19,388	-60.2		6	19,431	-64.1	
50					6	20,352	-55.1		5	20,401	-58.5		12	20,592	-62.6		7	20,462	-57.7		19	20,529	-58.7		5	20,569	-59.8	
40					5	21,770	-55.7						10	21,971	-58.9						17	21,935	-57.9					
30													7	23,775	-57.1						12	23,750	-56.3					

MAZATLAN, MEXICO (1011 MB.)				MEDFORD, ORE. ( 968 MB.)				MERIDA, MEXICO (1015 MB.)				MIAMI, FLA. (1022 MB.)				NANTUCKET, MASS. (1016 MB.)				NASHVILLE, TENN. (1000 MB.)				NORTH PLATTE, NEBR. ( 917 MB.)				
SURFACE	23	14	22.7	80	31	401	1.9	86	31	27	24.1	68	31	4	19.9	74	31	14	1.4	75	31	177	7.5	77	31	849	-4.1	75
1,000	23	113	22.1	75	31	133			31	157	23.6	68	31	191	19.8	71	31	143	1.5	70	31	174	3.8		31	152		
950	23	574	23.8	45	31	512	2.5	77	31	604	21.5	67	31	633	16.7	74	31	557	-4.4	70	31	600	6.4	66	31	567		
900	23	988	21.8	35	31	986	1.6	69	31	1,072	18.3	70	31	1,091	13.7	75	31	989	-1.3	65	31	1,040	5.5	63	31	986	-1.9	59
850	23	1,525	18.6	33	31	1,444	-1.0	68	31	1,560	15.0	71	31	1,572	12.5	54	31	1,443	-2.4	57	31	1,507	4.7	57	31	1,454	-1.3	42
800	23	2,041	15.0	33	31	1,925	-4.0	69	31	2,071	12.8	53	31	2,080	12.5	28	31	1,924	-3.4	55	31	2,001	3.8	49	31	1,939	-1.1	39
750	23	2,593	11.6	32	31	2,438	-7.0	67	31	2,615	11.6	35	31	2,623	10.0	23	31	2,437	-5.0	48	31	2,529	1.4	48	31	2,458	-3.4	40
700	23	3,158	8.2		31	2,967	-10.1	65	31	3,188	9.8		31	3,189	7.0	21	31	2,972	-7.0	49	31	3,075	-1.2	47	31	2,994	-6.6	42
650	23	3,775	4.9		31	3,542	-13.4	63	31	3,801	6.9		31	3,796	3.4		31	3,551	9.4	46	31	3,666	-3.8	46	31	3,576	-10.2	43
600	23	4,415	1.4		30	4,138	-17.1	59	31	4,453	3.2		31	4,439	-2.2		31	4,162	-12.6	44	31	4,292	-7.3	43	31	4,182	-13.9	41
550	23	5,117	-2.3		30	4,791	-21.1	55	31	5,156	-9.9		31	5,130	-4.4		31	4,828	-16.5	44	31	4,966	-11.2	42	31	4,841	-18.4	40
500	23	5,860	-6.9		30	5,483	-25.9	53	31	5,906	-5.8		31	5,873	-9.2		31	5,532	-20.9	44	31	5,690	-15.7	41	31	5,543	-22.8	40
450	23	6,682	-12.3		30	6,241	-31.2	49	31	6,732	-11.4		31	6,683	-14.9		31	6,306	-26.0	45	31	6,482	-20.7	41	31	6,313	-28.0	38
400	23	7,564	-18.6		30	7,063	-36.3	48	31	7,616	-17.8		31	7,561	-21.1		31	7,146	-31.8	43	31	7,338	-26.5	42	31	7,144	-32.7	38
350	23	8,545	-25.8		30	7,977	-42.0		29	8,597	-25.7		31	8,532	-28.4		31	8,076	38.5		31	8,293	-33.1	43	31	8,068	-39.8	
300	23	9,642	-34.4		30	9,006	-47.8		28	9,694	-34.4		31	9,617	-36.8		29	9,115	-45.6		31	9,359	-40.9		31	9,106	-46.1	
250	22	10,893	-44.2		30	10,194	-52.8		25	10,942	-44.2		31	10,854	-46.1		28	10,310	-52.4		31	10,576	-49.3		31	10,301	-52.2	
200	21	12,356	-56.1		29	11,629	-52.6		23	12,400																		



# RADIOSONDE DATA

Average monthly values

Table 20—Continued

JANUARY 1952

ST. CLOUD, MINN. ( 978 MB. )				SAN ANTONIO, TEX. ( 991 MB. )				SAN JUAN, P. R. (1016 MB. )				SANTA MARIA, CALIF. (1011 MB. )				S. STE. MARIE, MICH. ( 989 MB. )				SPOKANE, WASH. ( 929 MB. )				SWAN ISLAND, W. I. (1016 MB. )							
Standard pressure surface (mb.)																															
Number of observations				Dynamic height				Temperature				Relative humidity				Number of observations				Dynamic height				Temperature				Relative humidity			
SURFACE	31	317	-13.9	76	31	240	14.9	66	31	19	22.3	76	31	71	8.1	85	30	221	- 7.8	83	31	722	- 5.1	84	31	10	25.1	74			
1,000---	31	147			31	168			31	156	23.2	75	31	163	9.4	77	30	131			31	135			31	150	24.4	75			
950---	31	547	-11.8	72	31	608	15.5	63	31	603	19.8	78	31	589	8.0	66	30	533	- 8.0	81	31	547			31	601	21.0	77			
900---	31	956	- 7.5	65	31	1,062	13.9	61	31	1,066	16.3	81	31	1,033	5.7	60	30	948	- 9.4	83	31	970	- 3.6	76	31	1,065	17.5	78			
850---	31	1,404	- 5.7	56	31	1,543	12.5	58	31	1,551	13.3	80	31	1,499	3.6	52	30	1,389	- 9.7	74	31	1,421	- 4.8	74	31	1,552	14.2	73			
800---	31	1,878	- 6.8	47	31	2,051	12.0	41	31	2,060	10.9	73	31	1,989	1.5	49	30	1,857	- 9.8	61	31	1,896	- 6.8	70	31	2,062	11.9	55			
750---	31	2,388	- 8.5	45	31	2,593	10.3	26	31	2,600	9.4	52	31	2,512	- 6	37	30	2,360	-10.8	53	31	2,402	- 9.4	66	31	2,604	10.6	66			
700---	31	2,913	-10.8	41	31	3,159	7.0	26	31	3,167	7.4	29	31	3,055	- 3.6	34	30	2,883	-13.1	53	31	2,928	-12.6	65	31	3,173	8.9				
650---	31	3,488	-13.9	41	31	3,767	3.2	26	31	3,784	5.3		31	3,643	- 7.0		30	3,451	-15.8	51	31	3,496	-16.2	60	31	3,790	6.2				
600---	31	4,083	-17.5	44	31	4,408	- 7	28	31	4,423	1.8		30	4,260	-10.6		29	4,043	-19.2	51	31	4,087	-19.9	58	31	4,434	2.8				
550---	31	4,738	-21.3	42	31	5,097	- 4.8	30	31	5,117	- 2.3		30	4,929	-14.6		29	4,690	-23.1	46	30	4,736	-23.8	56	31	5,136	- 1.3				
500---	30	5,431	-25.9	43	31	5,840	9.6	33	31	5,869	- 6.9		30	5,640	-19.3		29	5,378	-27.4	44	30	5,422	-28.3	53	31	5,885	- 6.0				
450---	30	6,191	-30.8	43	31	6,649	-15.0		31	6,688	-12.3		30	6,421	-24.4		28	6,132	-32.2		30	6,172	-33.1	50	31	6,709	-11.5				
400---	30	7,012	-36.8		30	7,524	-21.0		31	7,573	-18.8		30	7,265	-30.5		28	6,949	-37.6		29	6,993	-38.5	50	31	7,593	-18.1				
350---	30	7,924	-43.5		30	8,496	-28.1	31	31	8,553	-26.4		30	8,201	-37.4		26	7,869	-43.6		27	7,895	-44.1		31	8,574	-26.2				
300---	29	8,943	-50.1		29	9,584	-35.9		31	9,649	-34.7		30	9,250	-44.2		26	8,890	-49.8		27	8,916	-49.8		31	9,668	-34.8				
250---	29	10,121	-54.0		29	10,825	-45.4		30	10,898	-44.2		30	10,452	-51.0		23	10,078	-54.2		27	10,093	-54.4		31	10,912	-44.7				
200---	28	11,543	-53.6		29	12,277	-56.0		30	12,361	-54.2		29	11,880	-54.9		22	11,505	-53.6		27	11,524	-52.7		31	12,369	-55.2				
175---	28	12,402	-53.3		29	13,117	-60.8		30	13,207	-59.3		29	12,731	-55.8		22	12,363	-53.6		26	12,393	-51.9		30	13,211	-60.6				
150---	26	13,387	-53.7		28	14,070	-64.7		30	14,159	-65.1		29	13,707	-57.6		22	13,353	-53.7		26	13,393	-51.2		30	14,157	-66.2				
125---	25	14,552	-55.0		25	15,174	-68.1		29	15,255	-70.3		26	14,853	-59.6		21	14,516	-54.5		26	14,574	-52.3		26	15,247	-71.5				
100---	23	15,973	-56.2		22	16,500	-70.1		29	16,563	-75.3		24	16,237	-62.9		19	15,928	-56.2		25	16,012	-52.8		24	16,543	-77.5				
80---	20	17,388	-57.6		17	17,824	-70.5		27	17,850	-76.4		21	17,603	-62.8		18	17,346	-57.7		24	17,448	-53.7		21	17,808	-78.3				
60---	16	19,227	-57.1		13	19,536	-66.5		24	19,529	-69.1		16	19,387	-60.4		17	19,157	-59.3		16	19,284	-53.6		20	19,478	-69.1				
50---	12	20,390	-57.8		9	20,655	-61.2		18	20,636	-63.2		16	20,527	-58.9		10	20,286	-59.3		12	20,443	-53.6		20	20,586	-62.6				
40---	8	21,815	-56.3		6	22,045	-58.1		12	22,030	-59.6		14	21,917	-57.7		7	21,716	-58.3		10	21,895	-54.1		18	21,971	-59.9				
30---	5	23,665	-54.5						10	23,841	-57.4		7	23,727	-55.3						6	23,749	-54.3		17	23,780	-55.9				
20---									8	26,435	-52.5													8	26,385	-50.2					
15---									5	28,279	-50.3																				

TACUBAYA, MEXICO ( 776 MB. )				TAMPA, FLA. (1023 MB. )				TATOOSH ISLAND, WASH. (1006 MB. )				WASHINGTON, D. C. (1010 MB. )																			
Number of observations				Dynamic height				Temperature				Relative humidity				Number of observations				Dynamic height				Temperature				Relative humidity			
SURFACE	14	2,306	15.5	31	9	15.9	78	31	31	3.9	88	31	88	3.8	70	31	199	17.3	71	31	75	3.6	86	31	167	4.2	62				
1,000---	14	88		31	199	17.3	71	31	75	3.6	86	31	167	4.2	62	31	642	15.0	66	31	495	1.2	85	31	588	3.9	62				
950---	14	548		31	642	15.0	66	31	495	1.2	85	31	588	3.9	62	31	1,092	12.3	65	31	923	- 1.5	86	31	1,023	2.7	59				
900---	14	1,025		31	1,092	12.3	65	31	923	- 1.5	86	31	1,023	2.7	59	31	1,571	11.6	45	31	1,376	- 4.3	85	31	1,484	1.4	57				
850---	14	1,518		31	1,571	11.6	45	31	1,376	- 4.3	85	31	1,484	1.4	57	31	2,077	11.0	31	31	1,851	- 7.4	81	31	1,971	- .3	55				
800---	14	2,046		31	2,077	11.0	31	31	1,851	- 7.4	81	31	1,971	- .3	55	31	2,621	8.8	26	31	2,357	- 9.9	70	31	2,492	- 1.9	51				
750---	14	2,557	14.6	31	2,621	8.8	26	31	2,357	- 9.9	70	31	2,492	- 1.9	51	31	3,181	5.8	23	31	2,892	-12.6	60	31	3,033	- 4.2	50				
700---	14	3,173	10.9	31	3,181	5.8	23	31	2,892	-12.6	60	31	3,033	- 4.2	50	30	3,792	2.3		30	3,448	-16.0	56	31	3,618	- 7.6	56				
650---	14	3,792	6.2	31	3,790	2.3		30	3,448	-16.0	56	31	3,618	- 7.6	56	30	4,425	- 1.3		30	4,041	-19.5	60	30	4,231	-10.9	49				
600---	14	4,438	1.6	31	4,425	- 1.3		30	4,041	-19.5	60	30	4,231	-10.9	49	31	5,118	- 5.4		30	4,686	-23.6	59	30	4,898	-14.4	44				
550---	14	5,138	- 1.9	31	5,118	- 5.4		30	4,686	-23.6	59	30	4,898	-14.4	44	31	5,855	-10.1		30	5,372	-28.5	57	30	5,612	-19.0	45				
500---	14	5,886	- 5.9	31	5,855	-10.1		30	5,372	-28.5	57	30	5,612	-19.0	45	31	6,668	-15.5		29	6,112	-33.9	56	30	6,394	-24.0	45				
450---	14	6,716	- 9.4	31	6,668	-15.5		29	6,112	-33.9	56	30	6,394	-24.0	45	31	7,538	-21.4		29	6,925	-39.6		30	7,239	-29.6	47				
400---	14	7,600	-17.9	31	7,538	-21.4		29	6,925	-39.6		30	7,239	-29.6	47	31	8,509	-28.6		29	7,825	-45.4		30	8,177	-35.9	48				
350---	13	8,587	-25.3	30	8,509	-28.6		29	7,825	-45.4		30	8,177	-35.9	48	31	9,594	-36.6		28	8,840	-50.4		30	9,231	-43.2					
300---	13	9,686	-34.1	30	9,594	-36.6		28	8,840	-50.4		30	9,231	-43.2		30	10,832	-46.2		27	10,018	-53.7		29	10,428	-51.0					
250---	9	10,943	-43.8	30	10,832	-46.2		27	10,018	-53.7		29	10,428	-51.0		28	12,287	-56.5		24	11,436	-52.5		28	11,869	-56.9					
200---	8	12,405	-55.5	29	12,287	-56.5		24	11,436	-52.5		28	11,869	-56.9		27	13,123	-61.7		21	13,290	-51.9		26	13,681	-59.7					
175---	8	13,244	-61.0	28	13,123	-61.7		21	13,290	-51.9		26	13,681	-59.7		25	14,075	-65.4		19	14,471	-51.4		23	14,817	-60.5					
150---	8	14,189	-65.9	26	14,075	-65.4		19	14,471	-51.4		23	14,817	-60.5		16	15,174	-69.0		16	15,921	-51.9		23	16,203	-61.9					
125---	6	15,285	-71.3	26	15,174	-69.0		16	15,921	-51.9		23	16,203	-61.9		13	16,494	-72.8		13	17,346	-52.2		18	17,592	-62.3					
100---				26	16,494	-72.8		13	17,346	-52.2		18	17,592	-62.3		8	17,803	-73.2		8	19,217	-54.5		13	19,389	-60.9					
80---				23	17,803	-73.2		8	19,217	-54.5		13	19,389	-60.9		16	19,500	-68.3		6	20,389	-54.9		11	20,527	-58.8					
60---				19	19,500	-68.3		6	20,389	-54.9		11	20,527	-58.8		13	20,608	-63.1						10	21,928	-57.4					
50---				16																											

Note: All observations scheduled at 0300, G.C.T. except at Ciudad Victoria, Mazatlan and Merida, where they are taken near 0200, G.C.T.. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and

expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.



# PILOT BALLOON DATA

Average monthly resultant winds

Table 21

JANUARY 1957

Altitude (meters) m.s.l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N.Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S.C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)			Las Vegas, Nev. (1,910 m.)		
	No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations		
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed				
Surface-----	29	234	2.9	31	217	1.2	30	272	2.3	29	285	1.6	27	128	2.4	29	155	5.2	26	239	3.4	30	227	0.8	16	262	1.8	26	230	3.9	31	250	2.6	28	183	1.8
500-----	29	229	4.7	31	217	1.2	30	272	2.3	29	285	1.6	27	128	2.4	29	155	5.2	26	239	3.4	30	227	0.8	16	262	1.8	26	230	3.9	31	250	2.6	28	183	1.8
1,000-----	29	229	4.7	31	217	1.2	30	272	2.3	29	285	1.6	27	128	2.4	29	155	5.2	26	239	3.4	30	227	0.8	16	262	1.8	26	230	3.9	31	250	2.6	28	183	1.8
1,500-----	27	245	6.6	31	217	1.2	30	272	2.3	29	285	1.6	27	128	2.4	29	155	5.2	26	239	3.4	30	227	0.8	16	262	1.8	26	230	3.9	31	250	2.6	28	183	1.8
2,000-----	27	253	8.7	31	217	1.2	30	272	2.3	29	285	1.6	27	128	2.4	29	155	5.2	26	239	3.4	30	227	0.8	16	262	1.8	26	230	3.9	31	250	2.6	28	183	1.8
2,500-----	27	254	10.6	31	217	1.2	30	272	2.3	29	285	1.6	27	128	2.4	29	155	5.2	26	239	3.4	30	227	0.8	16	262	1.8	26	230	3.9	31	250	2.6	28	183	1.8
3,000-----	27	261	13.2	31	217	1.2	30	272	2.3	29	285	1.6	27	128	2.4	29	155	5.2	26	239	3.4	30	227	0.8	16	262	1.8	26	230	3.9	31	250	2.6	28	183	1.8
4,000-----	25	261	16.9	27	247	15.8	21	276	15.2	20	286	15.4	10	262	9.2	15	290	16.2	19	289	16.9	14	287	21.0	12	278	19.0	30	257	17.9	20	260	10.8			
5,000-----	19	266	20.7	25	266	20.6	15	274	17.4	18	283	15.8																								
6,000-----	17	268	23.9	23	265	23.7	11	270	18.6	16	293	16.4																								
8,000-----				17	269	26.9																														
10,000-----				12	278	34.7				10	305	20.0																								

Altitude (meters) m.s.l.	Grand Junction, Colo. (1,475 m.)			Greensboro, N.C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)		
	No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations		
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed				
Surface-----	31	318	1.7	29	269	1.4	29	245	2.6	30	276	0.3	27	258	2.7	27	194	1.5	30	315	0.1	31	102	3.1	31	181	1.5	27	206	1.6	30	213	1.8	23	232	1.7
500-----	31	318	1.7	29	269	1.4	29	245	2.6	30	276	0.3	27	258	2.7	27	194	1.5	30	315	0.1	31	102	3.1	31	181	1.5	27	206	1.6	30	213	1.8	23	232	1.7
1,000-----	31	318	1.7	29	269	1.4	29	245	2.6	30	276	0.3	27	258	2.7	27	194	1.5	30	315	0.1	31	102	3.1	31	181	1.5	27	206	1.6	30	213	1.8	23	232	1.7
1,500-----	31	316	1.8	26	279	7.5	28	263	12.3	28	280	5.8	20	281	10.6	18	257	9.1	25	204	6.4	29	52	1.7	21	273	4.7	19	250	9.5	20	225	4.6	24	255	9.2
2,000-----	31	222	1.9	25	282	10.4	26	272	12.5	24	280	7.2	18	247	11.3	16	266	10.8	22	211	8.7	23	25	1.2	14	301	6.6	16	267	14.0	17	246	4.2	26	261	11.8
2,500-----	29	214	4.5	23	285	13.4	25	279	13.6	19	280	8.7	16	284	14.7	16	267	14.1	13	230	7.4	22	323	1.7	12	299	8.9	12	278	15.7	13	276	3.9	24	261	18.2
3,000-----	27	235	7.0	20	286	16.2	24	275	14.3	16	277	12.3	13	291	15.7	13	370	16.7	10	244	5.8	21	309	2.7	11	278	9.4	12	277	17.0	10	294	3.4	23	267	15.7
4,000-----	24	261	11.3	17	287	19.2	11	281	15.5	13	283	13.8																								
5,000-----	19	273	14.4	16	287	22.7				10	286	20.2																								
6,000-----	15	278	17.5	12	288	24.2																														
8,000-----																																				

Altitude (meters) m.s.l.	Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)			Spokane, Wash. (725 m.)			Washington, D.C. (24 m.)					
	No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations		
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed				
Surface-----	30	280	1.5	31	218	0.5	30	17	0.7	26	292	2.0	28	228	1.8	29	172	2.1	27	253	2.6	22	239	0.1	28	183	3.9	26	165	2.5	29	272	1.6			
500-----	30	268	2.6	31	191	1.5	30	17	0.7	26	288	3.4	28	236	4.1	29	176	2.8	26	278	2.0	22	236	2.4	28	201	6.9	26	165	2.5	29	272	1.6			
1,000-----	27	264	6.4	31	157	1.4	30	358	8.8	24	291	6.1	28	254	8.3	28	191	3.1	23	257	1.6	11	268	4.7	19	208	8.6	26	191	6.0	29	274	7.6			
1,500-----	26	268	8.7	30	176	2.1	29	269	4.7	22	283	9.4	22	260	10.7	24	234	3.8	30	281	1.6															
2,000-----	23	274	10.6	30	222	3.3	28	276	8.4	21	277	11.4	20	271	12.4	20	253	6.0	18	276	2.6															
2,500-----	23	278	12.1	30	244	5.3	27	279	10.8	21	279	12.6	17	280	14.1	20	258	8.1	17	254	3.9															
3,000-----	23	276	13.7	28	251	6.5	26	278	12.0	21	281	13.4	17	271	15.2	18	256	9.6	17	252	5.4															
4,000-----	20	271	15.4	23	257	11.2	23	281	14.3	21	286	16.4	13	284	19.2	15	266	12.9	15	263	7.6															
5,000-----	14	270	20.9	19	245	17.0	14	278	15.7	19	282	20.4	10	276	23.7	14	272	16.8	13	261	10.7															
6,000-----	10	270	19.6	14	243	16.1	10	273	16.3	17	243	25.5				12	266	20.7	15	265	14.8															
8,000-----										10	287	26.8																								

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°;

W = 270°);



## Average monthly resultant winds

Table 22

JANUARY 1952

[illegible]

These free air resultant winds are based on rawin observations made near 0300 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°);

speeds in meters per second.

Note: Resultants prepared from rawins at high altitudes are biased toward lower wind speeds. Values appearing in this table should therefore be used with caution when the number of observations missing is greater than three.

See note following table 3 in the January 1950 issue of the CLIMATOLOGICAL DATA, National Summary.



# SOLAR RADIATION DATA

Table 30—Solar radiation intensities, tabulated in langleye per minute

JANUARY 1952

Date	Sun's zenith distance								Vapor pressure, EST.		
	A. M.				00°	P. M.				730 a.m.	130 p.m.
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°		

TABLE MOUNTAIN, CALIF.

Air mass										Mb	Mb
3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76			
Jan.											
2----				1.57							
3-----				1.58							
4-----				1.57							
5-----				1.53							
9-----				1.56							
19-----				1.52							
28-----				1.57							
Aver-				1.56							
ages											
Depar-											
tures				+0.01							

LINCOLN, NEBR.

Air mass										Mb	Mb
4.77	3.81	2.86	1.91	0.95	1.91	2.86	3.81	4.77			
Jan.											
3-----	0.92	1.04	1.15						1.4	3.3	
8-----		.87	1.09				1.18	1.07	0.98	4.4	3.8
11-----							1.05	.92	.83	4.2	4.2
14-----	.70	.90	1.07							8.1	9.1
30-----	.81	.92	1.06	1.24		1.24	1.07	.96	.88	2.3	3.8
31-----	.81	.94	1.09	1.22		1.22	1.07	.90	.79	4.6	6.4
Aver-	.81	.93	1.09	1.23		1.23	1.09	.96	.86		
ages											
Depar-											
tures	-.11	-.11	-.09	-.16		-.15	-.09	-.09	.07		

MADISON, WIS.

Air mass										Mb	Mb
4.81	3.84	2.88	1.92	0.96	1.92	2.88	3.84	4.81			
Jan.											
3-----										1.3	2.5
17-----	0.63	0.80	1.07							9.1	6.4
18-----	.91	1.02								2.7	3.5
28-----	.90	1.03	1.14							.6	.7
29-----	.87	1.01	1.13							.3	.9
Aver-	.83	.97	1.11								
ages											
Depar-											
tures	-.05	-.04	-.06								

BLUE HILL, MASS.

Air mass										Mb	Mb
4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86			
Jan.											
4-----	0.75	0.92	1.09							2.7	2.3
8-----						1.28	1.17	1.10	1.4	.8	
11-----	1.03	1.17	1.26			1.32	1.21	1.10	1.9	2.1	
16-----							.83	5.5	3.3		
18-----							.96	10.6	2.0		
19-----	1.07	1.14	1.26					2.4	2.0		
21-----	1.00	1.14	1.26			1.33	1.21	1.11	2.0	1.0	
24-----								1.00	1.9	1.4	
30-----		1.05	1.12			1.21	1.06	.93	.5	.7	
31-----	.86	.96	1.07						1.1	2.1	

\* Extrapolated

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface.  
An explanation of Tables 30 and 31 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data are given

Date	Sun's zenith distance								Vapor pressure, EST.	
	A M				00°	P M			730 a m	130 p m
	78 7°	75 7°	70 7°	60 0°		60 0°	70 7°	75 7°		

ALBUQUERQUE, N.M.

Air mass										Mb	Mb
4.08	3.26	2.44	1.61	*0.815	1.61	2.44	3.26	4.08			
Jan.											
1-----	0.83	0.96	1.08	1.26		1.29	1.13	1.01	0.92	3.2	3.8
2-----						1.23	1.10	.94	.83	2.5	2.7
4-----	.91	.95	1.15	1.31		1.19	1.21	1.10	1.01	1.7	2.1
5-----	.93	1.04	1.18	1.37		1.38		1.06		1.7	2.0
6-----	1.01	1.15	1.27							1.4	1.6
8-----		.99	1.13			1.29				1.5	1.6
9-----	.92	1.04	1.17	1.37		1.38	1.18	1.09	.99	2.6	2.1
11-----			1.05	1.23		1.30				2.0	2.2
14-----	.91	1.03	1.17	1.36		1.37	1.21	1.09	1.00	2.5	3.5
15-----	.92	1.04	1.17	1.32		1.31	1.18	1.04	.94	2.5	3.2
16-----						1.31	1.18	1.04			
17-----						CLOUDY					
18-----						CLOUDY					

RECORDER INOPERATIVE AFTER JANUARY 18TH

Aver-	0.92	1.03	1.15	1.32		1.30	1.17	1.05	0.95		
ages											
Depar-											
tures	-.09	-.08	-.08	-.05		-.11	-.09	.11	-.11		

TACUBAYA, D. F., MEXICO

Air mass										Mb	Mb
3.83	3.07	2.31	1.53	0.77	1.53	2.31	3.07	3.83			
Jan.											
2-----	0.37	0.43	0.62	1.08						6.8	6.7
3-----	.67	.72	.78	.90						5.9	5.7
4-----	.41	.41	.50	.75						8.0	7.7
5-----	.51	.57	.64	.74						3.2	7.4
7-----	.80	.80	1.02							8.1	9.9
8-----	.48	.59	.66	.79						7.4	8.8
9-----	.44	.48	.77	.96						7.3	7.9
11-----	.34	.35	.39	.52						6.1	8.0
12-----	.30	.40		.96						7.1	8.0
14-----		.73	.64	.76						2.3	4.7
15-----						0.55	0.35	0.25	0.19	6.3	6.5
16-----			.84	1.06		1.02	.84			5.4	6.0
17-----	.49	.63	.68	1.08		.86	.28	.16		5.3	5.9
18-----	.54	.63	.64	.68		.77	.64	.46		5.7	4.9
19-----	.40	.47	.53	.65		.53	.20			5.7	6.4
21-----		.65	.90	1.03						5.2	6.9
25-----						.40	.34	.22	.11	8.3	8.7
26-----		.56	.73	1.05		.47				7.6	6.7
28-----		.65	.70	.81						6.4	6.3
29-----			.69			.63		.36	.28	6.9	6.9
30-----	.37	.49	.61	.65						6.5	5.2
Aver-	.47	.56	.69	.84		.65	.44	.29	.19		
ages											
Depar-											
tures	.00	-.02	-.02	-.05		-.11	-.12	-.09	-.13		

BOSTON, MASS.

Air mass										Mb	Mb
4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96			
Jan.											
4-----											
8-----											
11-----											
16-----											
18-----											
19-----											
21-----											
24-----											
30-----											
31-----											

RECORDER INOPERATIVE DURING JANUARY 1952

Aver-											
ages											
Depar-											
tures											

in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 4. A list of periodic stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for Table 30 appears in Table 30 appears in volume 75, No. 3, March 1947, p. 3.



# SOLAR RADIATION DATA

JANUARY 1952

Table 31a.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

Date-----	1	2	3	4	5	6	7	Aver-	8	9	10	11	12	13	14	Aver-	15	16	17	18	19	20	21	Aver-
Langley's-----	19	27	243	312	39	50	53	age	507	64	34	604	277	314	40	263	38	110	67	481	471	33	586	298
Date-----	22	23	24	25	26	27	28	Aver-																
Langley's-----	50	212	371	462	20	29	11	age																
									165															

Table 31b.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during the month

Date-----	1	2	3	4	5	6	7	Aver-	8	9	10	11	12	13	14	Aver-	15	16	17	18	19	20	21	Aver-
Langley's-----	27	29	(48)	57	17	36	31	age	65	(52)	(14)	67	58	(48)	20	46	16	45	39	40	51	14	50	36
Date-----	22	23	24	25	26	27	28	Aver-																
Langley's-----	43	36	54	40	10	29	16	age																
									33															

Table 31c.-Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

Date-----	1	2	3	4	5	6	7	Aver-	8	9	10	11	12	13	14	Aver-	15	16	17	18	19	20	21	Aver-
Langley's-----	44	48	50	55	20	38	41	age	42	77	19	36	93	96	18	54	15	84	67	86	41	10	29	48
Date-----	22	23	24	25	26	27	28	Aver-																
Langley's-----	75	93	91	56	21	66	31	age																
									62															

Note.—Langley is the unit used to denote one gram calorie per square centimeter



# SOLAR RADIATION DATA

Table 33--Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyes

1952	Albuquerque, N.Mex.	Apalachicola, Fla.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Big Spring, Tex.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Is., Pac. Area	Charleston, S.C.	Columbia, Mo.	Columbus, Ohio	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	E. Wareham, Mass.	Edmonton, Alberta	El Paso, Tex.	Fairbanks, Alaska	Ft. Worth, Tex.	Fresno, Calif.	Grand Junction, Colo.	Grand Lake, Colo.	Griffin, Ga.	Hatteras, N.C.	Honolulu, T.H.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N.Y.	Keflavik, Iceland	Lake Charles, La.	Lander, Wyo.	
January 1	324	335	261	0	14	187	60	254	40	303	851	299	65	79	251	196	65	36	101	325	5	88	286	238	266	268	206	451	49	296	59	12	247	---	
January 2	300	157	267	0	10	36	58	244	42	252	731	309	47	48	243	181	136	46	104	345	3	48	294	237	280	237	206	451	49	296	59	10	215	---	
January 3	179	200	279	0	12	73	113	246	129	87	711	331	69	210	202	82	182	177	88	249	3	43	265	277	280	237	206	451	49	296	59	10	215	---	
January 4	335	336	94	0	19	351	160	148	129	91	730	294	179	210	202	82	182	177	88	249	3	43	265	277	280	237	206	451	49	296	59	10	215	---	
January 5	343	311	185	0	19	351	160	148	129	91	730	294	179	210	202	82	182	177	88	249	3	43	265	277	280	237	206	451	49	296	59	10	215	---	
January 6	181	379	132	0	10	314	73	125	33	232	730	147	131	48	153	232	59	23	96	367	6	367	289	306	175	155	94	452	58	312	38	3	276	---	
January 7	168	366	350	0	44	360	73	125	33	232	730	147	131	48	153	232	59	23	96	367	6	367	289	306	175	155	94	452	58	312	38	3	276	---	
January 8	298	224	0	0	35	298	55	181	46	420	716	342	134	44	149	93	80	21	56	322	10	323	233	172	72	338	294	463	41	324	147	3	334	---	
Averages	(262)	298	224	0	21	231	78	197	61	216	714	251	(127)	70	182	214	90	67	90	325	6	(232)	264	246	224	224	217	200	414	95	275	112	9	229	---
Departures	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
January 9	336	302	162	0	57	210	238	194	202	414	657	199	286	78	164	297	19	210	58	299	9	208	309	207	191	160	89	413	120	321	190	4	160	---	
January 10	269	389	343	0	9	330	35	171	21	403	---	---	---	158	126	310	29	61	73	385	10	354	303	336	277	124	164	431	66	311	16	5	98	---	
January 11	323	387	320	0	3	261	255	177	219	396	---	---	---	103	85	254	154	17	74	257	8	387	178	244	260	334	49	391	128	309	20	13	410	---	
January 12	255	130	281	0	60	175	169	120	155	305	---	---	---	178	49	250	137	231	57	303	4	256	90	241	259	332	335	312	128	242	229	22	328	---	
January 13	110	273	130	0	35	303	190	253	155	338	(809)	239	243	35	192	98	62	179	42	176	25	286	182	158	103	133	302	475	38	298	151	5	252	---	
January 14	354	360	173	0	27	201	32	121	17	323	682	208	128	45	112	94	40	16	79	377	10	132	55	295	298	152	263	444	44	291	18	11	241	---	
Averages	285	298	213	0	31	255	145	167	119	365	---	---	---	105	117	252	81	120	70	278	10	274	168	231	(222)	217	200	414	95	275	112	9	229	---	
Departures	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
January 15	349	184	78	0	12	328	36	108	18	356	787	186	297	252	146	295	33	36	94	372	17	318	53	138	247	61	247	492	259	91	182	9	243	---	
January 16	166	348	264	0	39	243	33	363	209	403	785	255	221	102	155	256	122	317	115	221	15	185	246	250	159	227	337	346	77	246	47	12	211	---	
January 17	197	268	158	0	32	240	297	272	215	226	737	232	238	334	204	155	68	58	147	(18)	240	281	193	131	136	---	163	74	110	33	15	201	---		
January 18	288	363	171	0	21	263	236	143	200	436	798	226	319	244	276	211	190	216	130	122	315	308	244	229	218	263	268	469	203	238	95	6	256	---	
January 19	368	265	210	0	31	323	236	143	200	436	798	226	319	244	276	211	190	216	130	122	315	308	244	229	218	263	268	469	203	238	95	6	256	---	
January 20	371	170	308	1	36	332	284	174	248	166	641	347	301	200	163	310	33	33	74	397	35	291	312	333	180	287	360	454	35	313	182	---	241	---	
January 21	259	233	0	1	33	219	160	197	139	307	727	251	201	139	190	271	82	147	85	275	(22)	239	20	199	182	215	269	340	126	225	100	11	230	---	
Averages	(272)	259	233	1	33	219	160	197	139	307	727	251	201	139	190	271	82	147	85	275	(22)	239	20	199	182	215	269	340	126	225	100	11	230	---	
Departures	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
January 22	373	294	42	0	50	338	98	134	71	302	---	---	---	144	161	365	16	89	135	396	36	379	257	248	139	23	37	339	68	270	29	---	317	---	
January 23	351	86	381	1	32	331	167	142	130	267	593	284	306	144	161	365	16	89	135	396	36	379	257	248	139	23	37	339	68	270	29	---	317	---	
January 24	258	318	253	2	53	406	262	123	200	193	---	---	---	120	114	334	39	186	213	166	405	56	354	13	105	148	364	369	492	204	85	153	---	382	---
January 25	362	369	151	3	58	315	262	140	203	413	728	217	89	120	114	334	39	186	213	166	405	56	354	13	105	148	364	369	492	204	85	153	---	382	---
January 26	376	167	---	2	2	377	34	153	21	373	762	198	37	6	259	339	25	27	83	125	(52)	333	306	212	170	241	274	491	2	346	28	---	198	---	
January 27	390	345	124	2	63	266	76	120	63	213	---	---	---	332	306	47	114	362	22	47	94	59	149	171	329	151	287	253	295	28	---	131	253	---	
January 28	396	47	123	4	56	393	82	129	26	442	---	---	---	152	156	360	129	31	102	433	19	428	142	343	262	95	98	514	83	294	38	---	206	292	---
Averages	338	232	196	2	48	347	129	134	102	315	---	---	---	179	143	360	79	112	115	370	(43)	342	182	217	148	204	232	417	78	258	66	---	289	255	---
Departures	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
January 29	358	282	154	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Departures	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Accumulated Departures January 1 to 28, 1952

		-84	-1098	-574	-	-	-	-	-679	+910	-224	-406	-	-238	-385	-182	-938	-	-497	-714	+14	-630	+106	+672	+609	-	-476	-749	-343	+539	-1029	-	-511	-	-91	-
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Note.--Langley is the unit used to denote one gram calorie per square centimeter.  
Values in parentheses are interpolated.



# SOLAR RADIATION DATA

Table 33 - Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyes. - Continued

JANUARY 1952

	Las Vegas, Nev.	Little Rock, Ark.	Los Angeles, Calif. (WRAS)	Madison, Wis.	Medford, Oreg.	Miami Fla.	Nashville, Tenn.	Newport, R.I.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Ottawa, Ontario	Pearl Harbor, T.H.	Phoenix, Ariz.	Put-in-Bay, Ohio	Rapid City, S.D.	Riverside, Calif.	Salt Lake City, Utah	San Antonio, Tex.	Santa Maria, Calif.	Sault Ste. Marie, Mich.	Savoy, N.Y.	Schenectady, N.Y.	Seabrook, N.J.	Seattle, Wash. (U. of W.)	Seattle-Tacoma, Wash.	State College, Pa.	Stillwater, Okla.	Swan Island, W.I.	Tampa, Fla.	Toronto, Ontario	Upton, N.Y.	Washington, D.C. (WBFO)	Winnipeg, Manitoba		
1952																																			
January 1-1952	296	125	309	152	206	328	209	50	(168)	---	111	390	333	109	200	322	262	173	326	50	124	40	60	68	136	125	89	481	---	---	151	126	126	122	
January 2-1952	290	125	309	152	206	328	209	50	(168)	---	111	390	333	109	200	322	262	173	326	50	124	40	60	68	136	125	89	481	---	---	151	126	126	122	
January 3-1952	281	125	309	152	206	328	209	50	(168)	---	111	390	333	109	200	322	262	173	326	50	124	40	60	68	136	125	89	481	---	---	151	126	126	122	
January 4-1952	281	125	309	152	206	328	209	50	(168)	---	111	390	333	109	200	322	262	173	326	50	124	40	60	68	136	125	89	481	---	---	151	126	126	122	
January 5-1952	293	125	309	152	206	328	209	50	(168)	---	111	390	333	109	200	322	262	173	326	50	124	40	60	68	136	125	89	481	---	---	151	126	126	122	
January 6-1952	293	125	309	152	206	328	209	50	(168)	---	111	390	333	109	200	322	262	173	326	50	124	40	60	68	136	125	89	481	---	---	151	126	126	122	
January 7-1952	299	125	309	152	206	328	209	50	(168)	---	111	390	333	109	200	322	262	173	326	50	124	40	60	68	136	125	89	481	---	---	151	126	126	122	
Averages	266	129	291	122	135	367	100	67	(140)	---	178	382	277	112	179	267	209	284	313	105	119	132	132	44	71	137	123	(445)	---	---	136	112	135	126	
Departures	+6	---	---	-5	+18	---	-8	-57	-12	---	+70	+17	-16	+19	---	+20	+47	---	+38	-1	-10	---	-16	-12	---	+37	-60	---	---	+60	-15	+6	---		
January 8-1952	175	111	321	77	212	335	64	244	59	---	194	413	335	107	118	264	130	302	326	24	267	226	182	77	75	89	242	461	---	---	34	236	89	104	
January 9-1952	285	32	341	165	40	414	34	43	53	---	149	292	257	25	194	342	262	307	347	104	70	86	130	60	31	104	156	(427)	---	---	15	55	92	121	
January 10-1952	281	321	307	119	119	378	100	---	81	---	180	344	277	126	117	293	189	443	347	189	11	36	35	84	100	81	281	449	---	---	157	9	86	67	
January 11-1952	165	205	203	145	94	208	199	254	235	---	183	349	330	201	187	270	130	339	192	46	283	229	260	19	18	234	128	465	---	---	135	250	260	114	
January 12-1952	107	144	55	205	93	207	107	134	150	---	52	480	191	186	96	130	251	308	141	34	176	79	181	91	140	189	211	(344)	---	---	59	155	94	104	
January 13-1952	135	60	300	42	109	155	102	210	67	---	90	511	109	50	195	134	72	150	204	42	226	83	205	38	38	95	59	472	---	---	100	217	138	107	
January 14-1952	295	90	203	16	101	231	166	34	104	---	115	401	346	47	199	192	266	136	277	60	66	44	115	67	73	81	251	470	---	---	20	42	142	74	
Averages	208	138	247	108	110	275	110	153	107	---	138	399	278	106	158	232	186	283	262	71	157	112	158	62	68	125	190	(441)	---	---	74	138	129	99	
Departures	-46	---	---	-29	-8	---	-21	-4	-33	---	+15	+28	-25	-27	---	-16	+38	---	-7	-33	+13	---	-4	-3	---	-12	-7	---	---	-12	+1	-41	-27	---	
January 15-1952	159	94	23	105	86	432	249	25	130	---	74	479	357	244	198	107	94	105	25	34	49	53	156	49	54	204	221	(505)	---	---	105	46	186	91	
January 16-1952	153	209	165	84	108	276	132	244	270	---	217	443	183	167	207	(101)	159	204	214	149	263	140	249	141	148	257	215	(531)	---	---	237	239	252	87	
January 17-1952	75	335	49	117	252	373	110	71	42	---	63	172	118	99	206	90	273	337	260	25	72	44	93	56	65	58	160	(521)	---	---	25	56	54	161	
January 18-1952	157	295	204	212	108	443	173	237	243	---	171	452	106	193	106	(190)	279	234	313	95	244	176	257	17	78	210	71	491	---	---	111	248	282	96	
January 19-1952	317	183	350	22	69	127	104	254	268	---	172	26	367	12	114	299	245	241	362	43	237	144	167	40	62	265	512	---	---	76	219	146	145		
January 20-1952	301	279	215	254	180	456	218	19	262	---	51	467	310	47	167	217	168	403	175	41	175	41	164	62	29	74	114	522	---	---	88	34	207	162	
January 21-1952	315	57	315	87	212	433	80	285	253	---	256	434	366	121	95	279	222	168	(347)	153	302	246	282	89	79	273	97	523	---	---	269	276	301	87	
Averages	211	179	189	126	145	406	152	162	181	---	143	353	258	126	156	(183)	177	213	(243)	96	173	120	195	65	70	163	163	(515)	---	---	130	160	204	118	
Departures	-47	---	---	-27	+26	---	+1	+3	+25	---	+5	+28	-66	-11	---	-91	+6	---	-29	-29	+28	---	+27	---	---	+35	---	---	---	+23	+22	+20	-19		
January 22-1952	282	263	316	125	108	457	75	70	31	---	91	479	346	21	141	346	106	505	334	72	33	45	29	73	68	125	246	440	---	---	27	32	10	---	
January 23-1952	171	348	225	202	86	---	303	198	327	---	131	482	194	89	132	248	201	358	139	233	194	119	198	34	45	236	513	---	---	138	183	247	---		
January 24-1952	129	207	139	140	128	---	279	241	307	---	307	330	271	496	357	214	101	218	47	365	45	230	261	139	34	50	192	24	(455)	---	---	194	237	240	---
January 25-1952	315	113	151	46	128	---	93	236	94	---	416	178	325	139	45	191	229	51	245	196	106	171	174	171	105	131	113	259	406	---	---	159	172	174	---
January 26-1952	338	213	403	127	136	---	129	16	37	---	220	77	459	385	11	195	293	187	198	378	73	9	20	36	61	53	41	116	387	---	---	39	6	42	---
January 27-1952	345	58	387	234	137	---	28	56	81	---	154	123	393	394	40	167	384	266	281	392	135	46	59	67	142	152	50	32	478	---	---	76	38	87	---
January 28-1952	276	344	397	265	232	(470)	46	35	138	---	432	182	517	412	204	219	392	249	483	326	260	30	89	25	149	166	48	247	546	---	---	239	27	21	---
Averages	264	221	288	163	145	---	136	122	145	---	328	450	318	89	161	302	158	348	258	158	106	92	101	85	96	88	166	(461)	---	---	110	99	117	---	
Departures	-22	---	---	-16	+2	---	-26	-35	-14	---	---	-13	+73	-21	-59	---	+44	-4	---	-42	-5	-20	---	-51	-13	---	-58	-70	---	---	-4	-24	-33	---	

Accumulated Departures January 1 to 28, 1952

-763	---	---	---	-539	+266	---	-378	-651	-238	---	+539	+1022	-896	-546	---	-301	+609	---	-280	-462	,77	---	-308	-203	---	-112	-1449	---	---	+469	-112	-490	---
------	-----	-----	-----	------	------	-----	------	------	------	-----	------	-------	------	------	-----	------	------	-----	------	------	-----	-----	------	------	-----	------	-------	-----	-----	------	------	------	-----

Note. --Langley is the unit used to denote one gram calorie per square centimeter.

Values in parentheses are interpolated.

W.R.P.C., Chattanooga, Tenn. --- 5/16/52 --- 2200







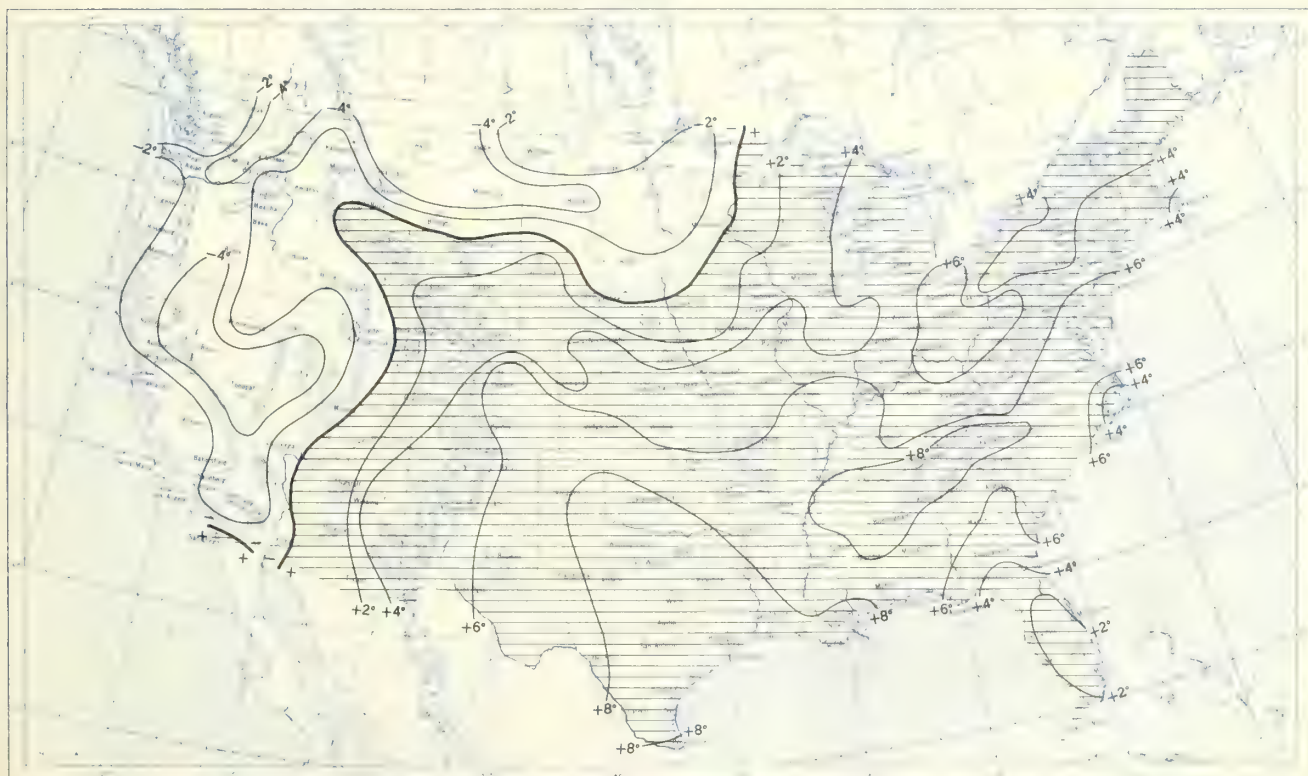




**Chart I. A. Average Temperature (°F.) at Surface, January 1952.**



**B. Departure of Average Temperature from Normal (°F.), January 1952.**

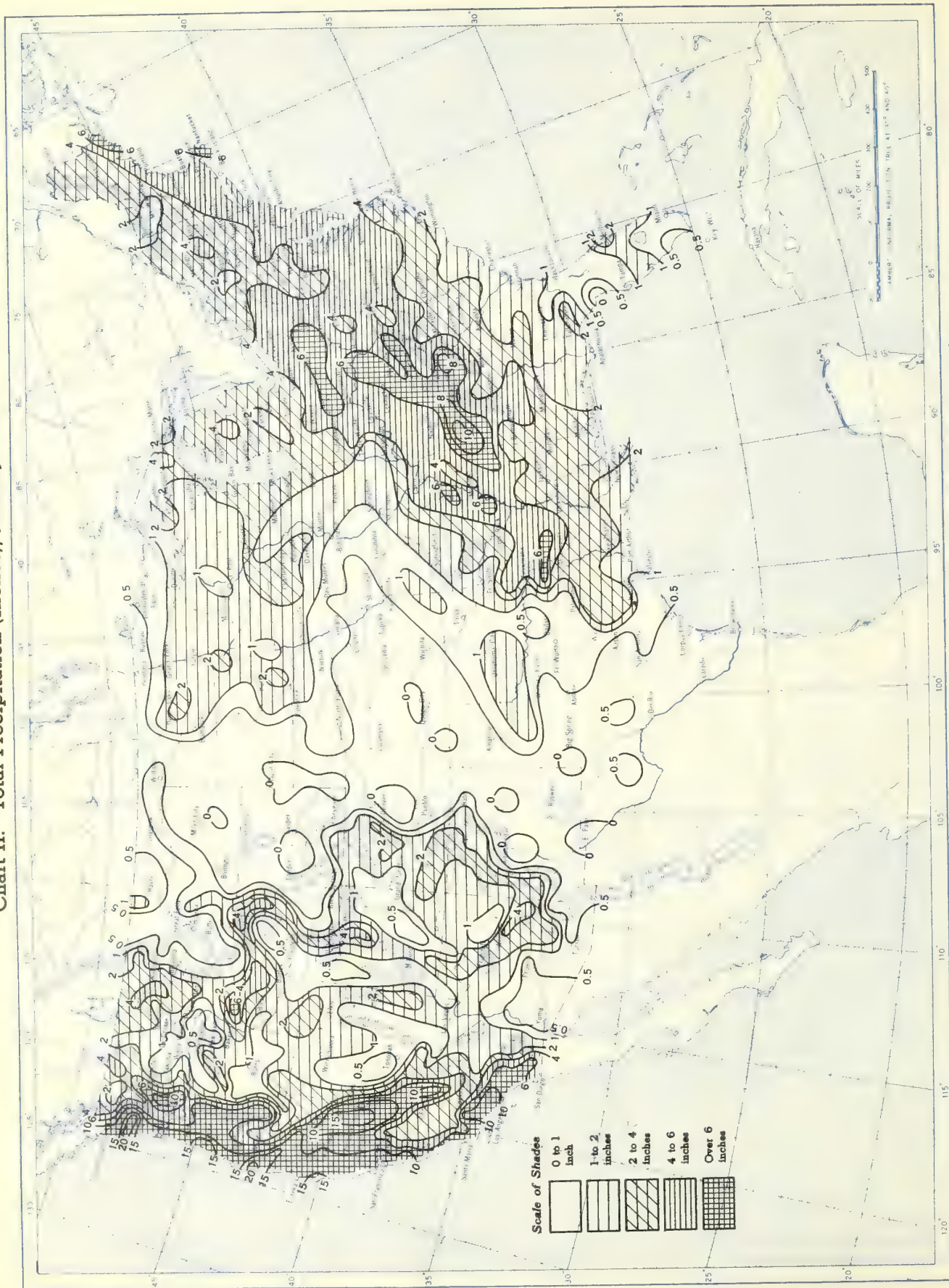


A. Based on reports from 800 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Normal average monthly temperatures are computed for Weather Bureau stations having at least 10 years of record.



Chart II. Total Precipitation (Inches), January 1952.



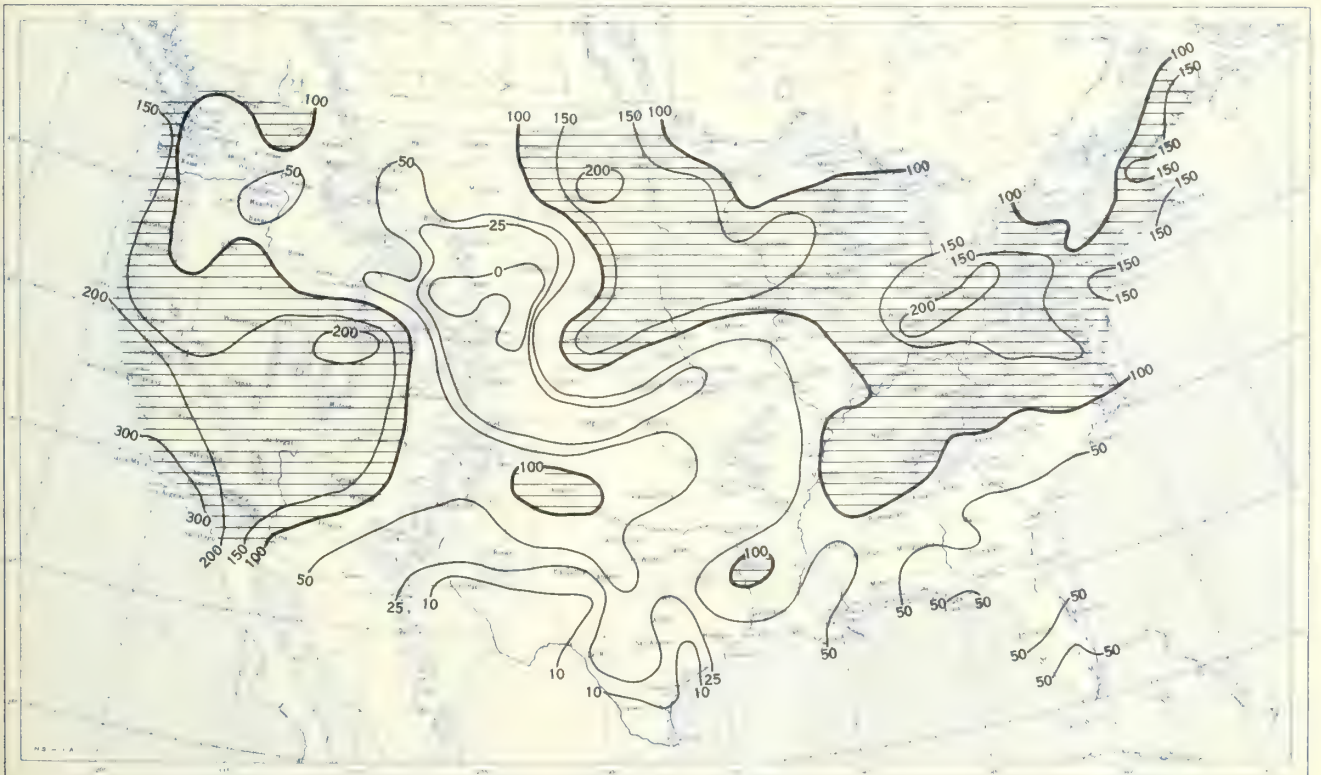
Based on daily precipitation records at 800 Weather Bureau and cooperative stations.



Chart III. A. Departure of Precipitation from Normal (Inches), January 1952.



B. Percentage of Normal Precipitation, January 1952.



Normal monthly precipitation amounts are computed for stations having at least 10 years of record.



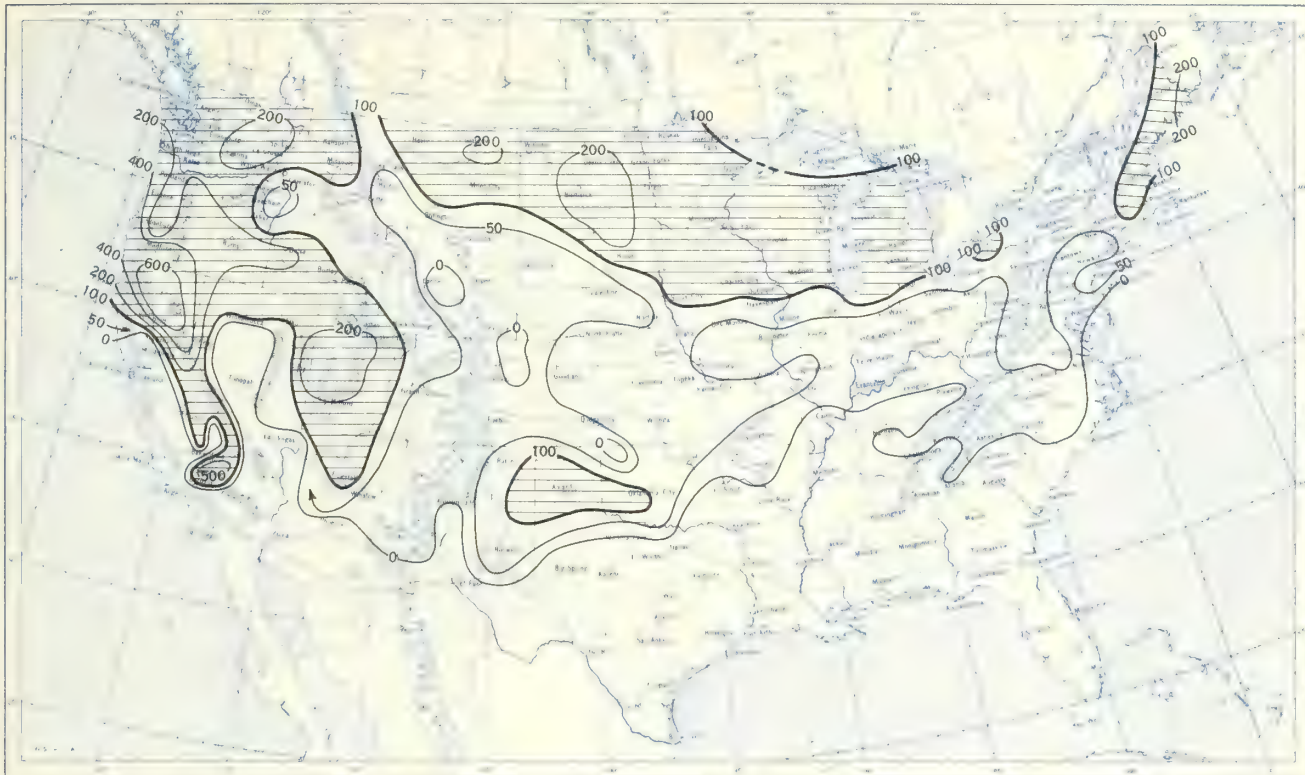
Chart IV. Total Snowfall (Inches), January 1952.



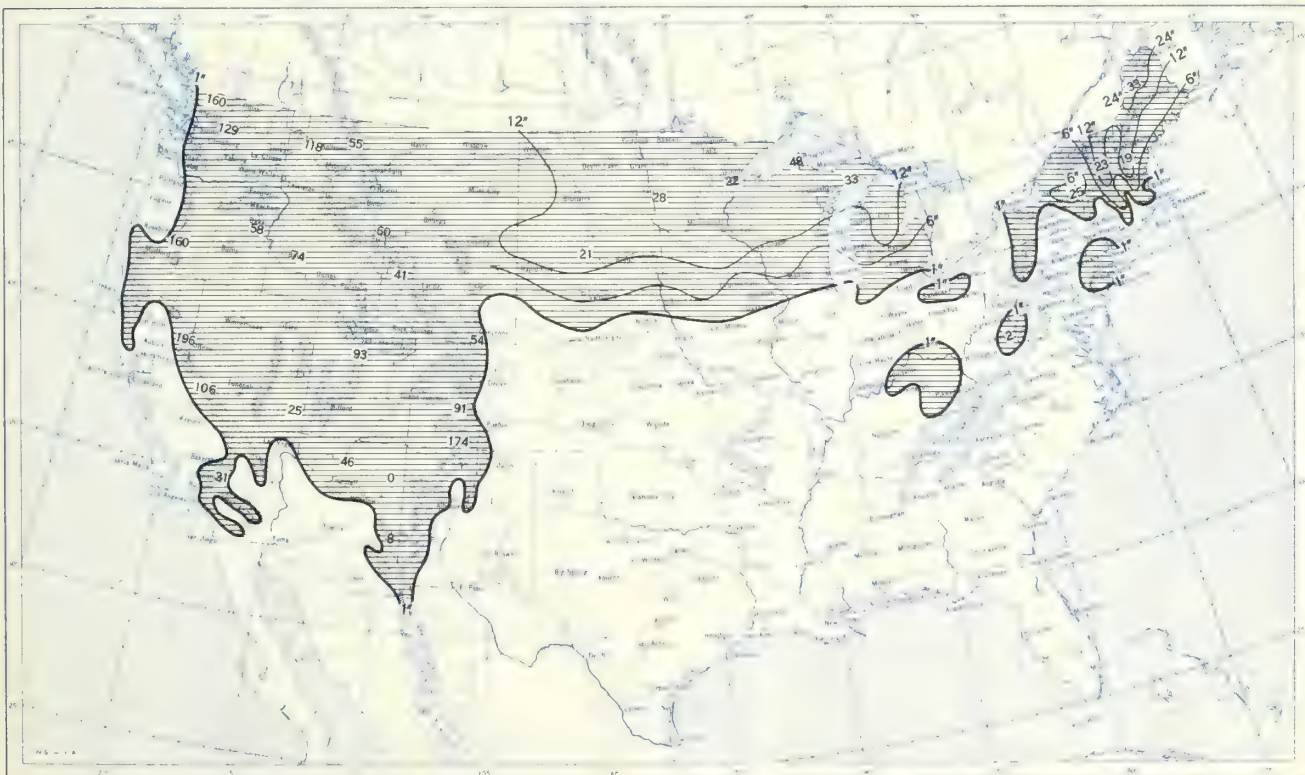
This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the purpose of showing the distribution of snowfall. A full statement of sources and methods of collection is given in the far West, earlier and later in the year.



Chart V. A. Percentage of Normal Snowfall, January 1952.



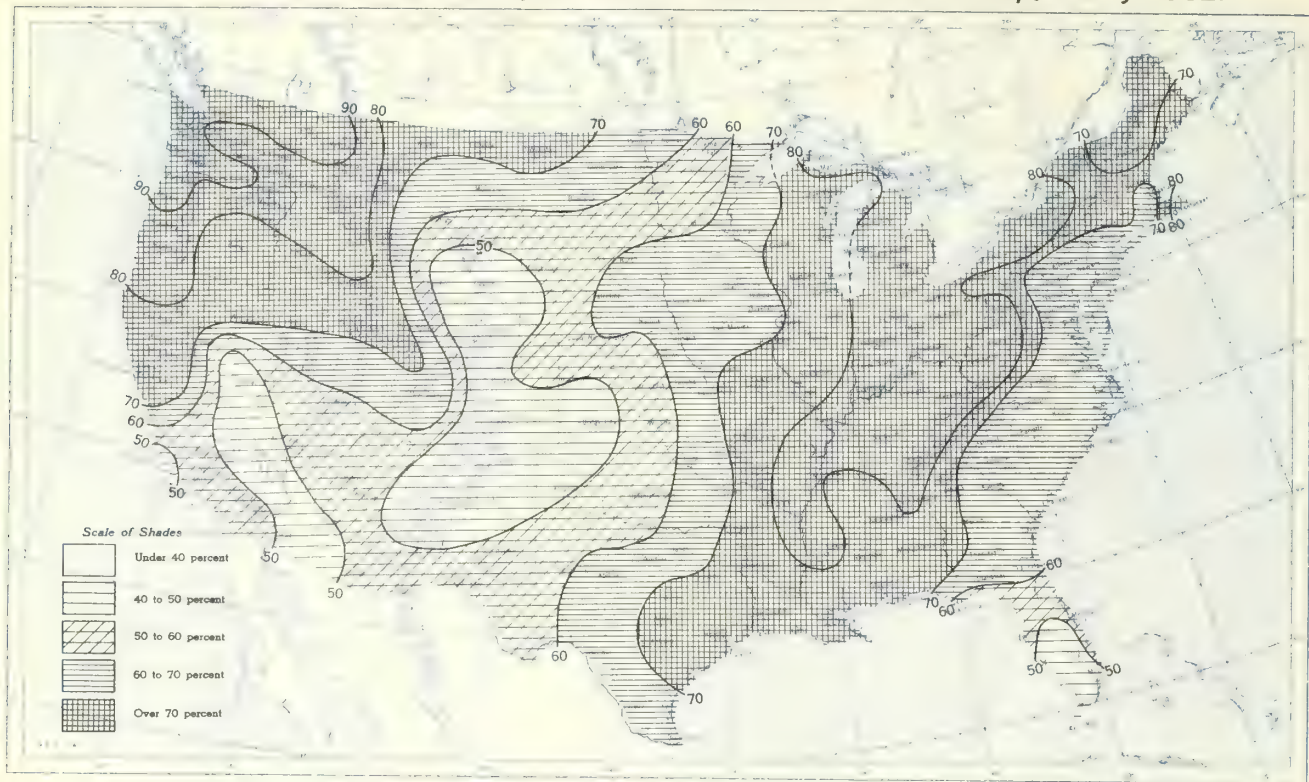
B. Depth of Snow on Ground (Inches), 7:30 a. m. E. S. T., January 29, 1952.



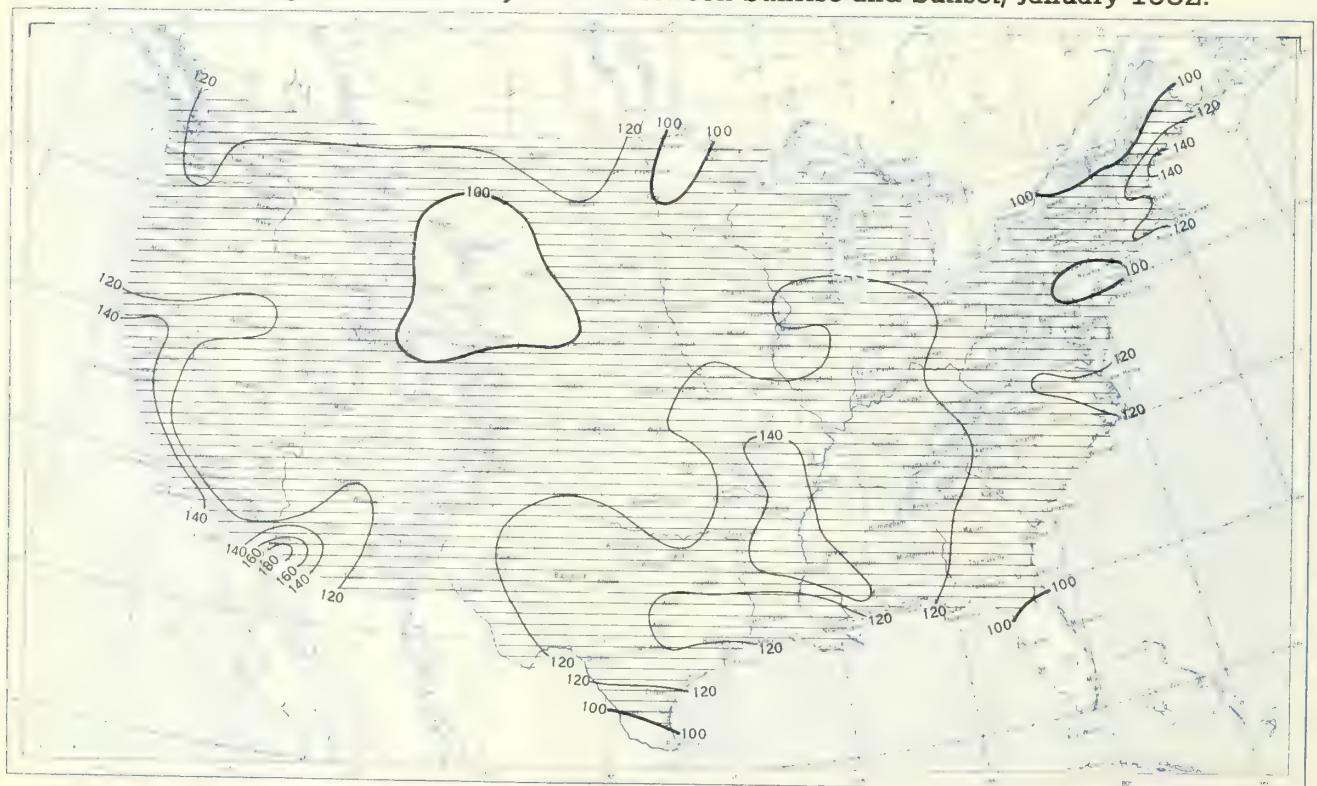
A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.  
 B. Shows depth currently on ground at 7:30 a. m. E. S. T., of the Tuesday nearest the end of the month. It is based on reports from Weather Bureau and cooperative stations. Dashed line shows greatest southern extent of snowcover during month.



**Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, January 1952.**



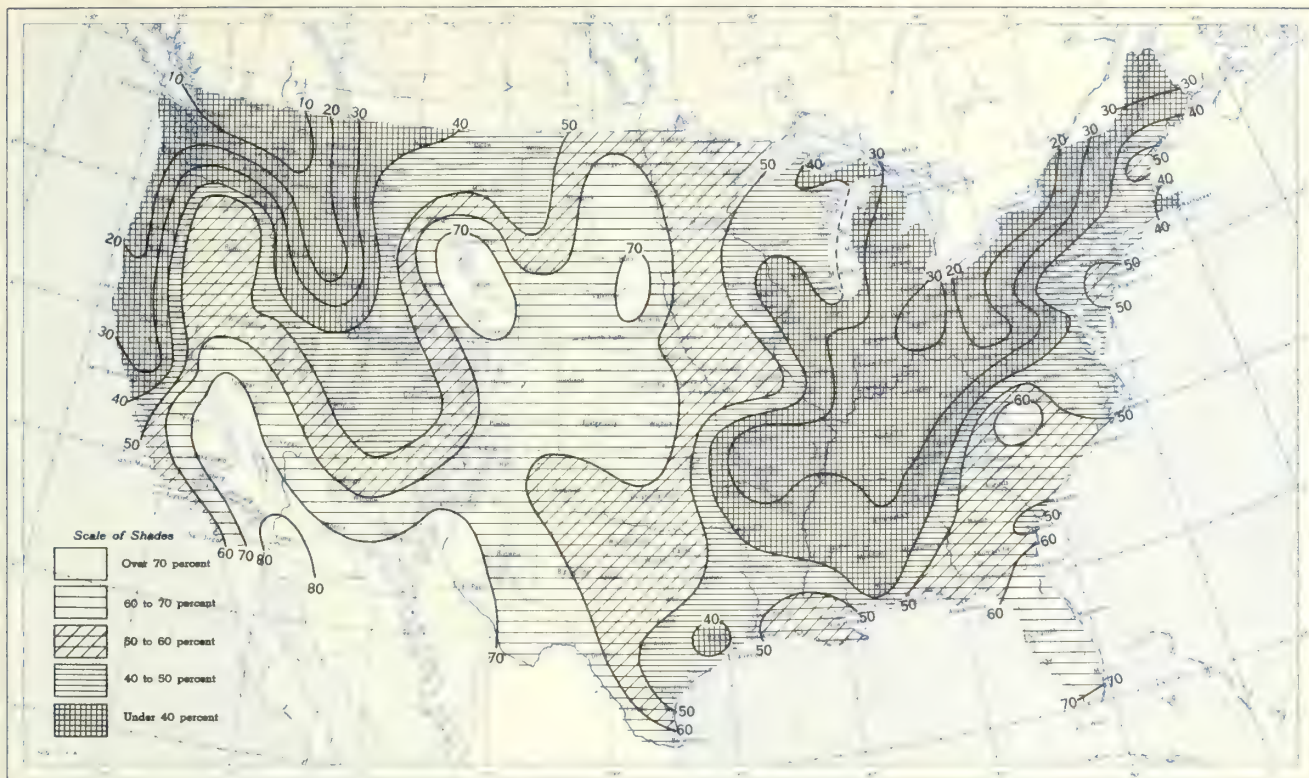
**B. Percentage of Normal Sky Cover Between Sunrise and Sunset, January 1952.**



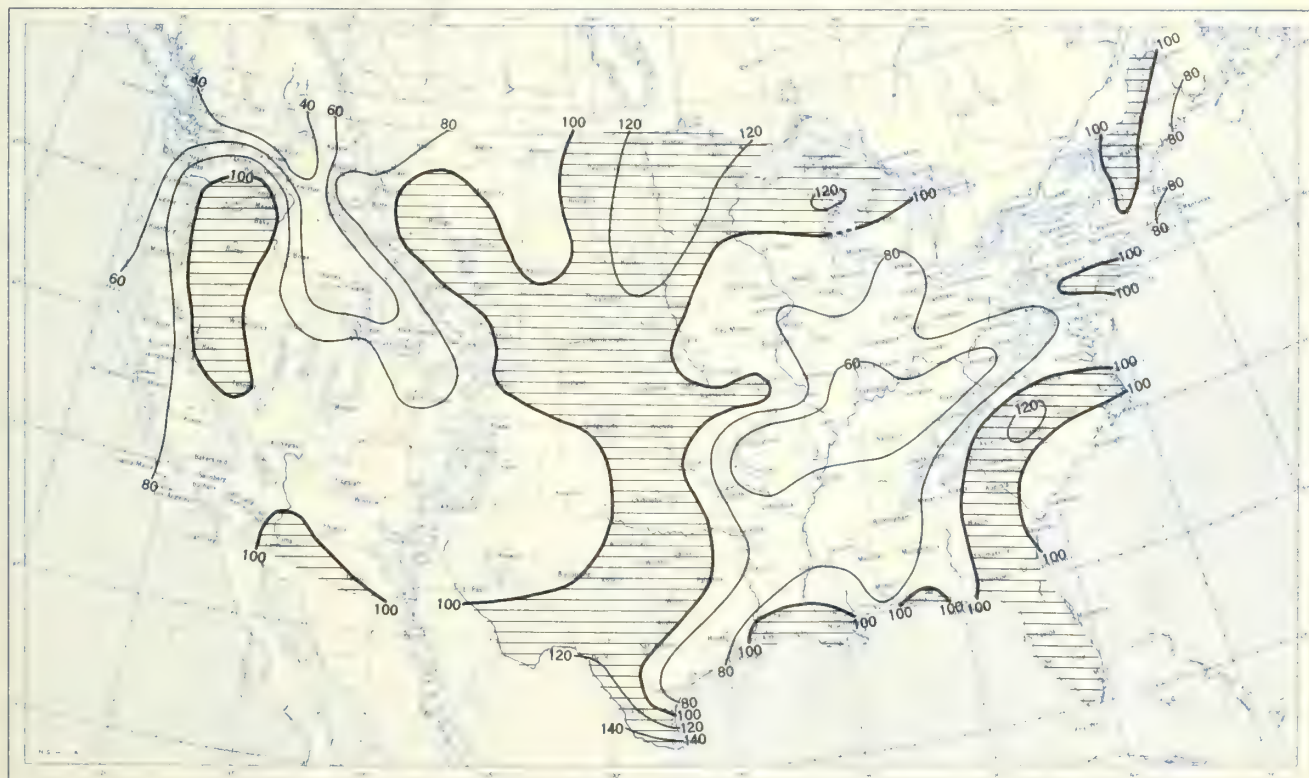
A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.



Chart VII. A. Percentage of Possible Sunshine, January 1952.



B. Percentage of Normal Sunshine, January 1952.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.



Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, January 1952. Inset: Percentage of Normal Average Daily Solar Radiation, January 1952.

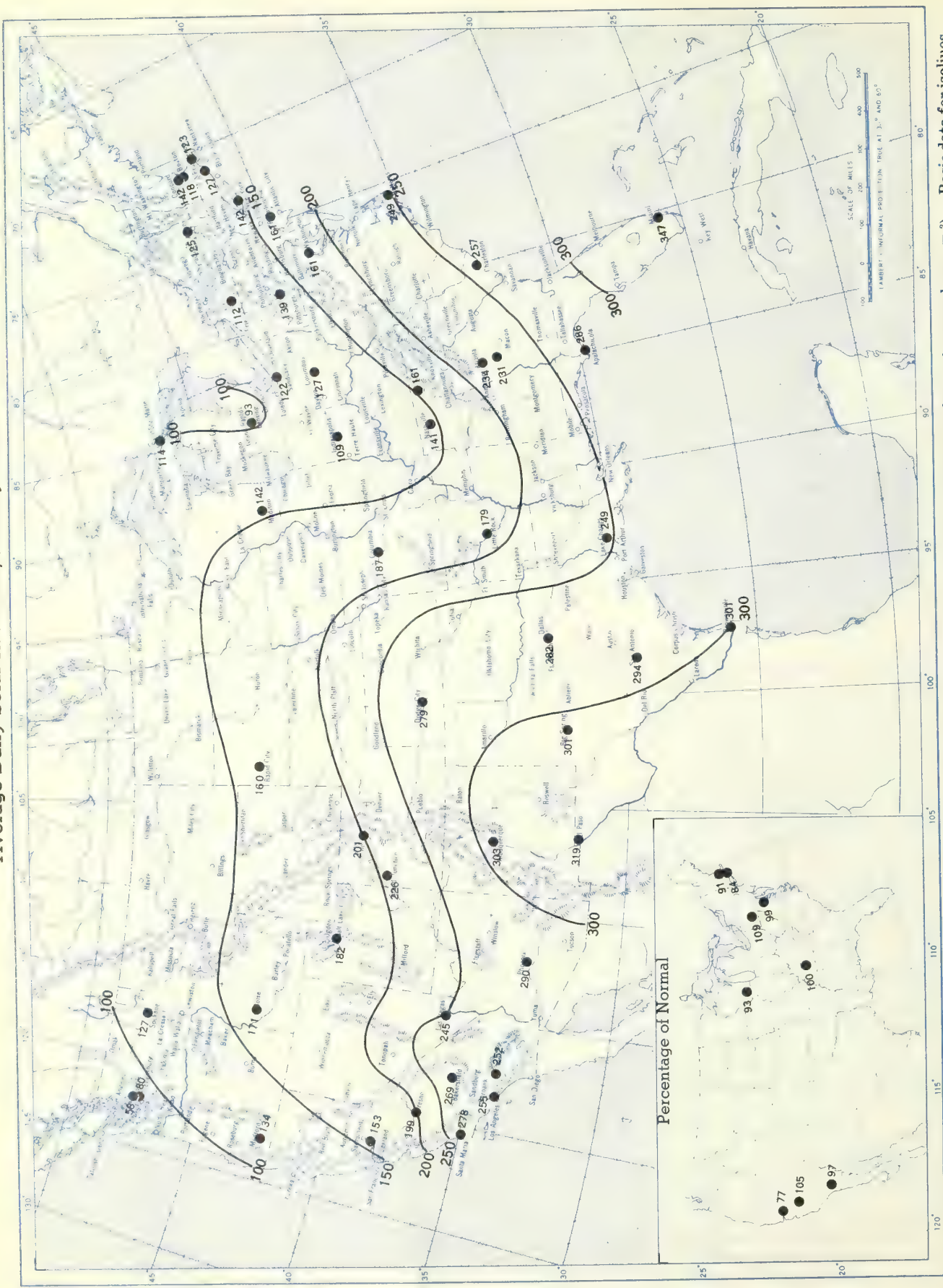
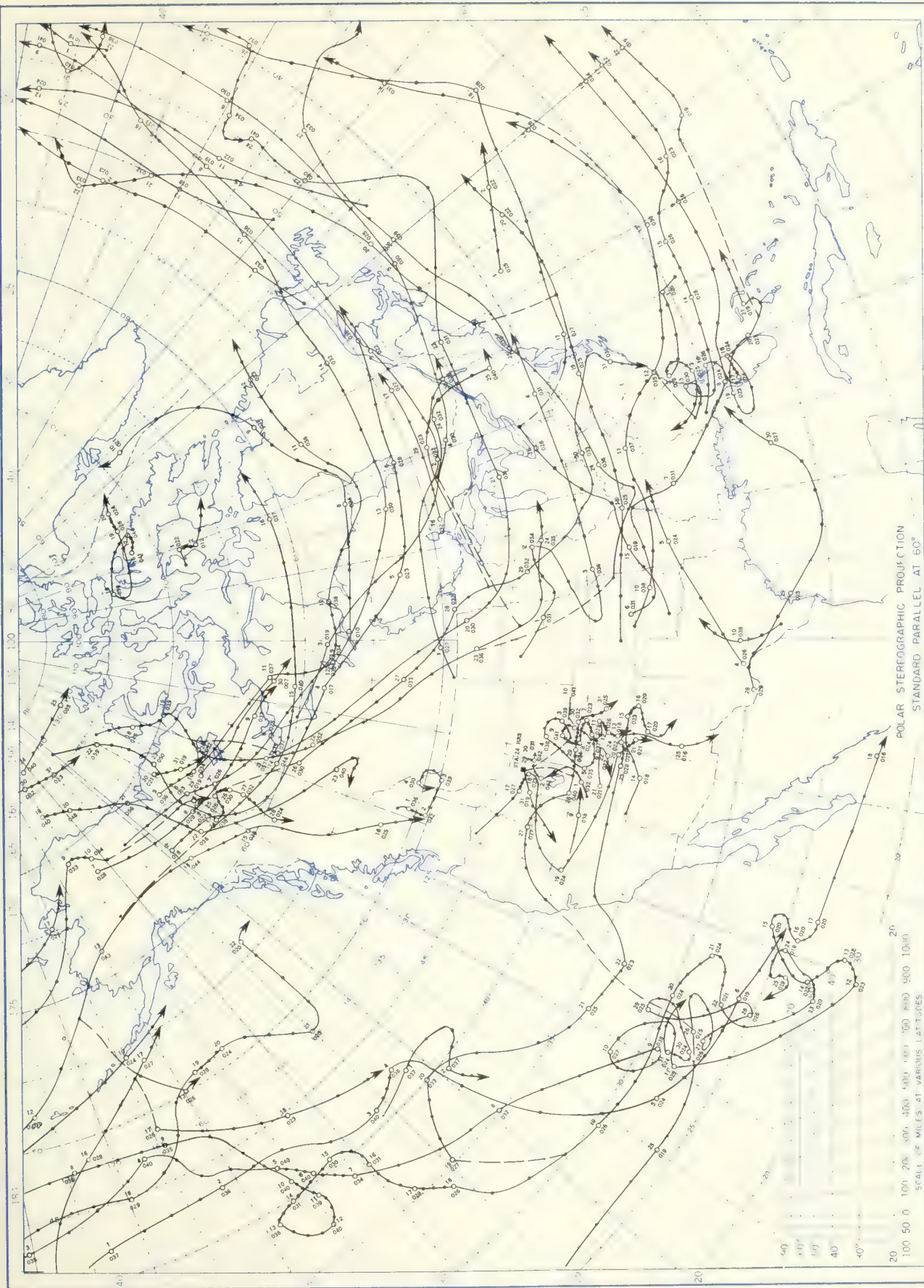


Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm.⁻²). Basic data for isolines shown on chart. Further estimates obtained from supplementary data for which limits of accuracy are wider than for those data shown. Normals are



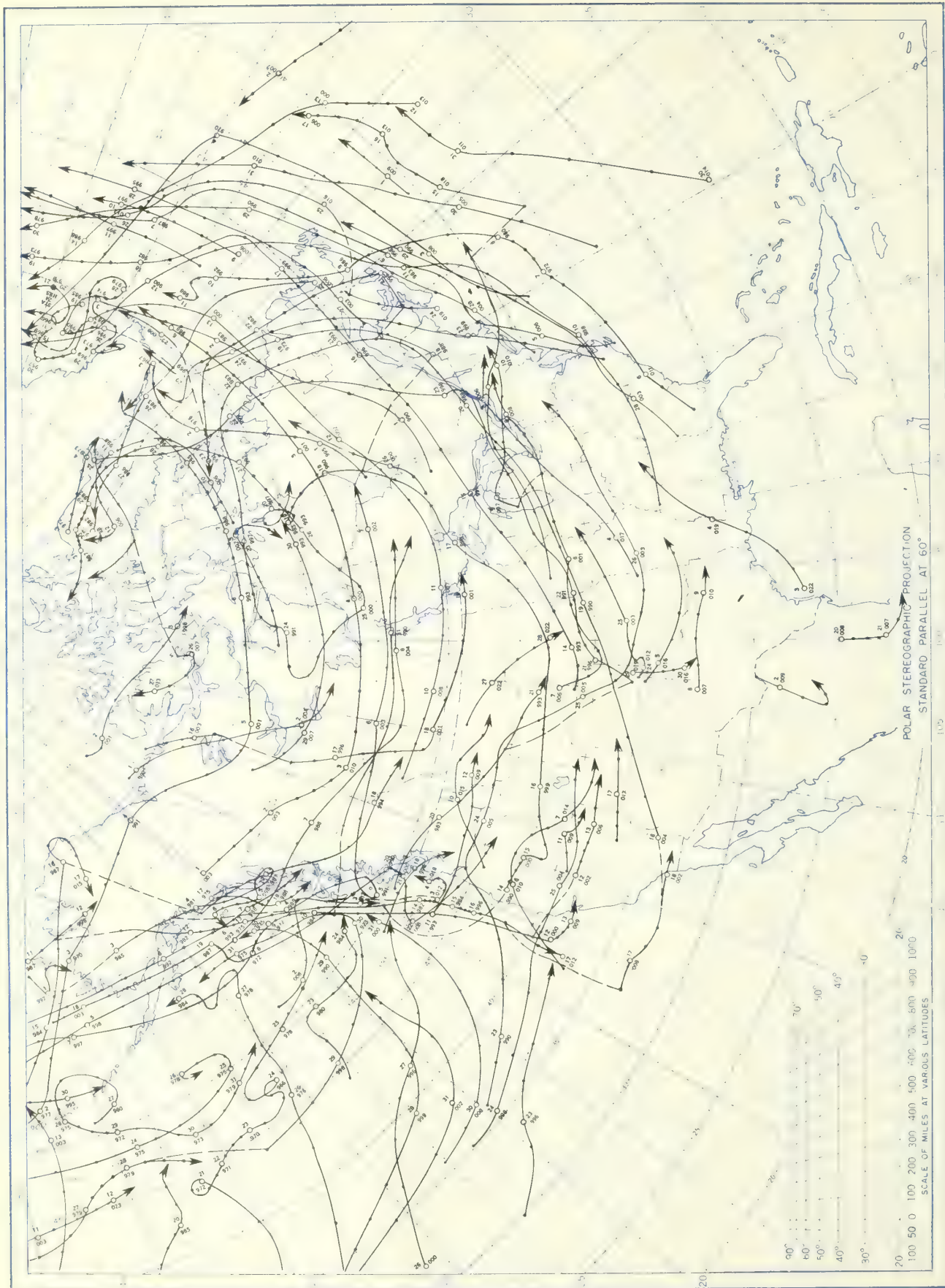
Chart IX. Tracks of Centers of Anticyclones at Sea Level, January 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



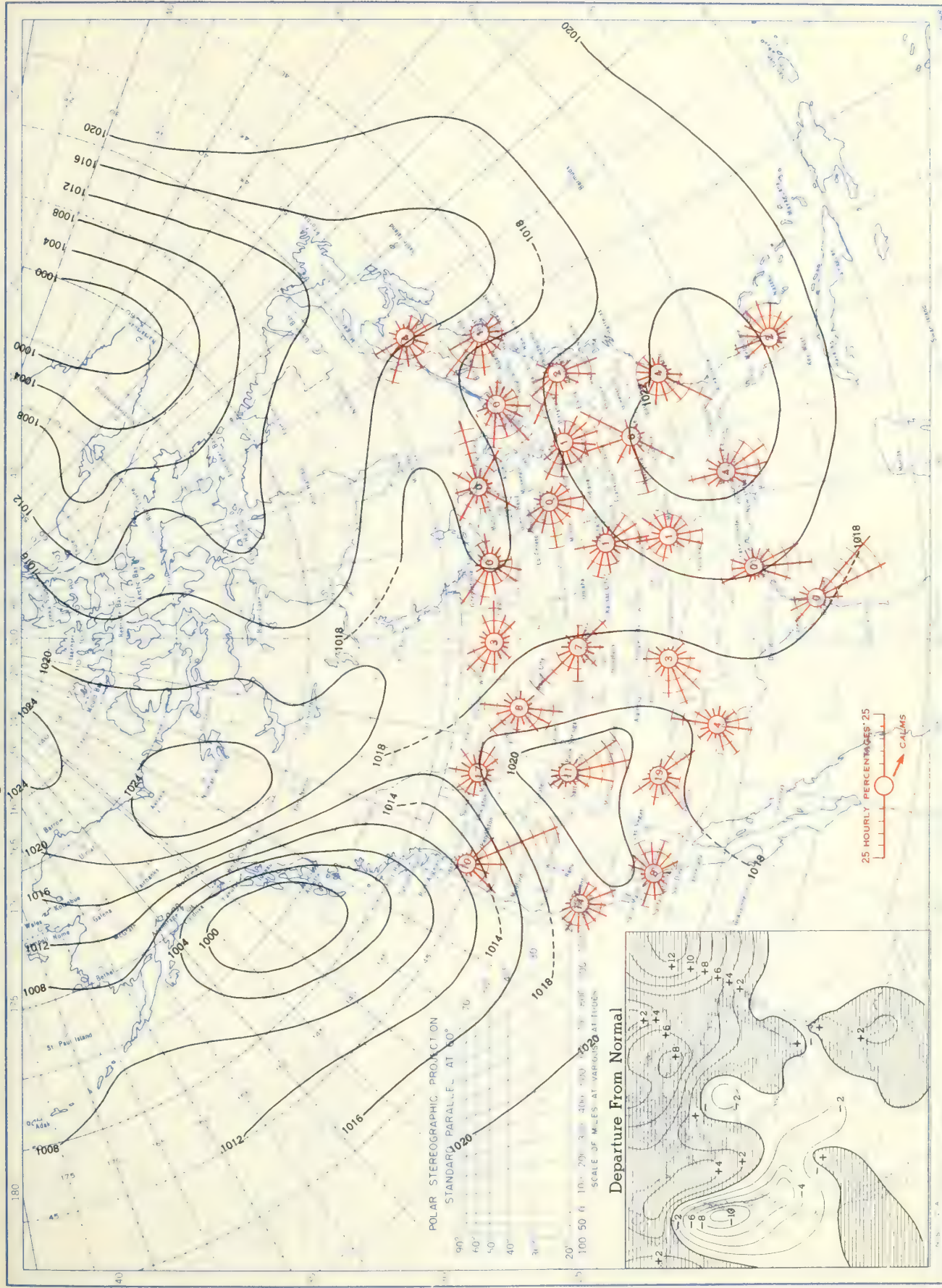
Chart X. Tracks of Centers of Cyclones at Sea Level, January 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. See Chart IX for explanation of symbols.



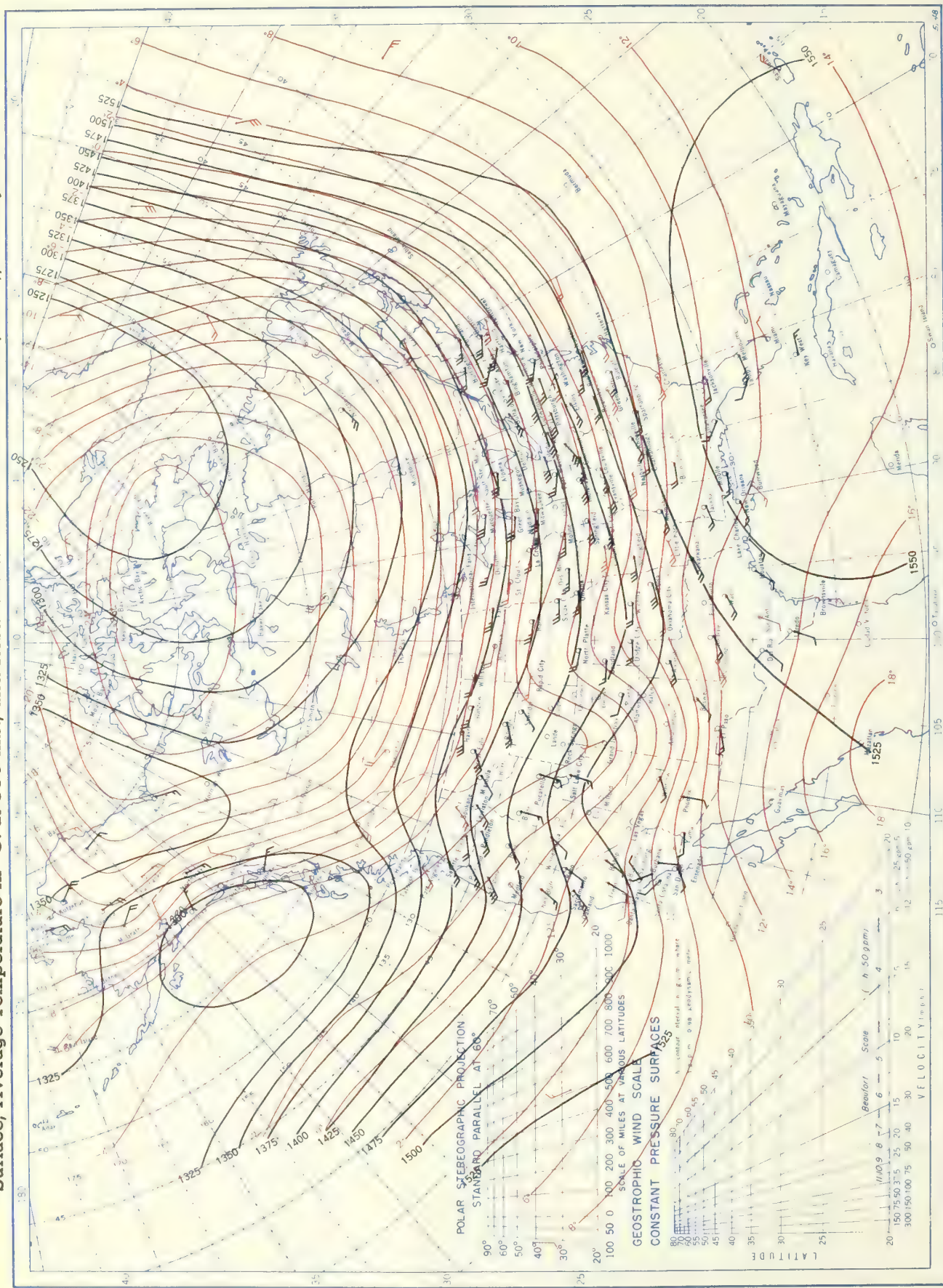
Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, January 1952. Inset: Departure of Average Pressure (mb.) from Normal, January 1952.



Average sea level pressures are obtained from the averages of the 7:30 a. m. and 7:30 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.



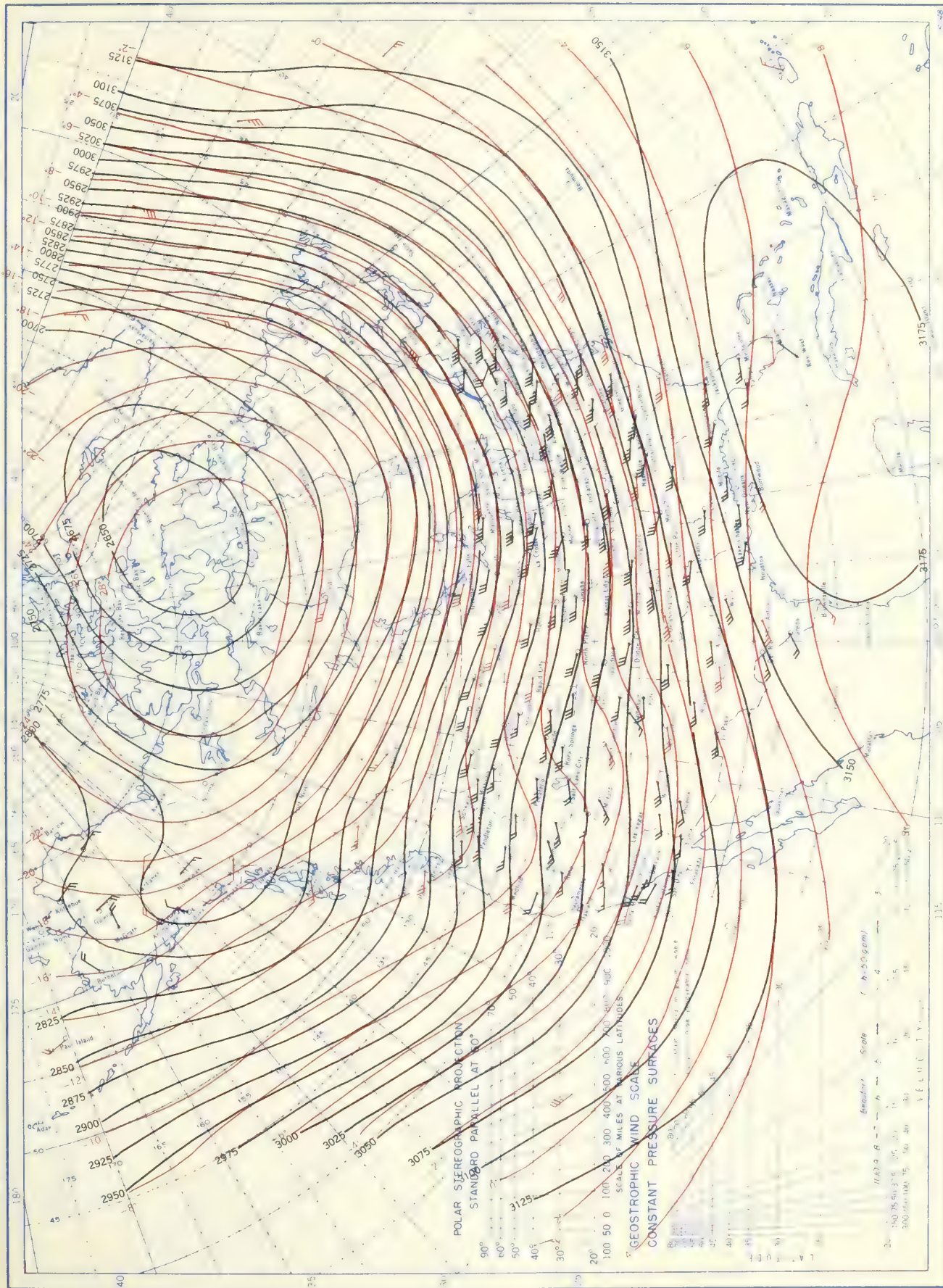
Chart XII. Average Dynamic Height in Geopotential Meters (1 g. p. m. = 0.98 dynamic meters) of the 850-mb. Pressure Surface, Average Temperature in °C. at 850 mb., and Resultant Winds at 1500 Meters (m. s. l.), January 1952.



**Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0300 G. M. T.**



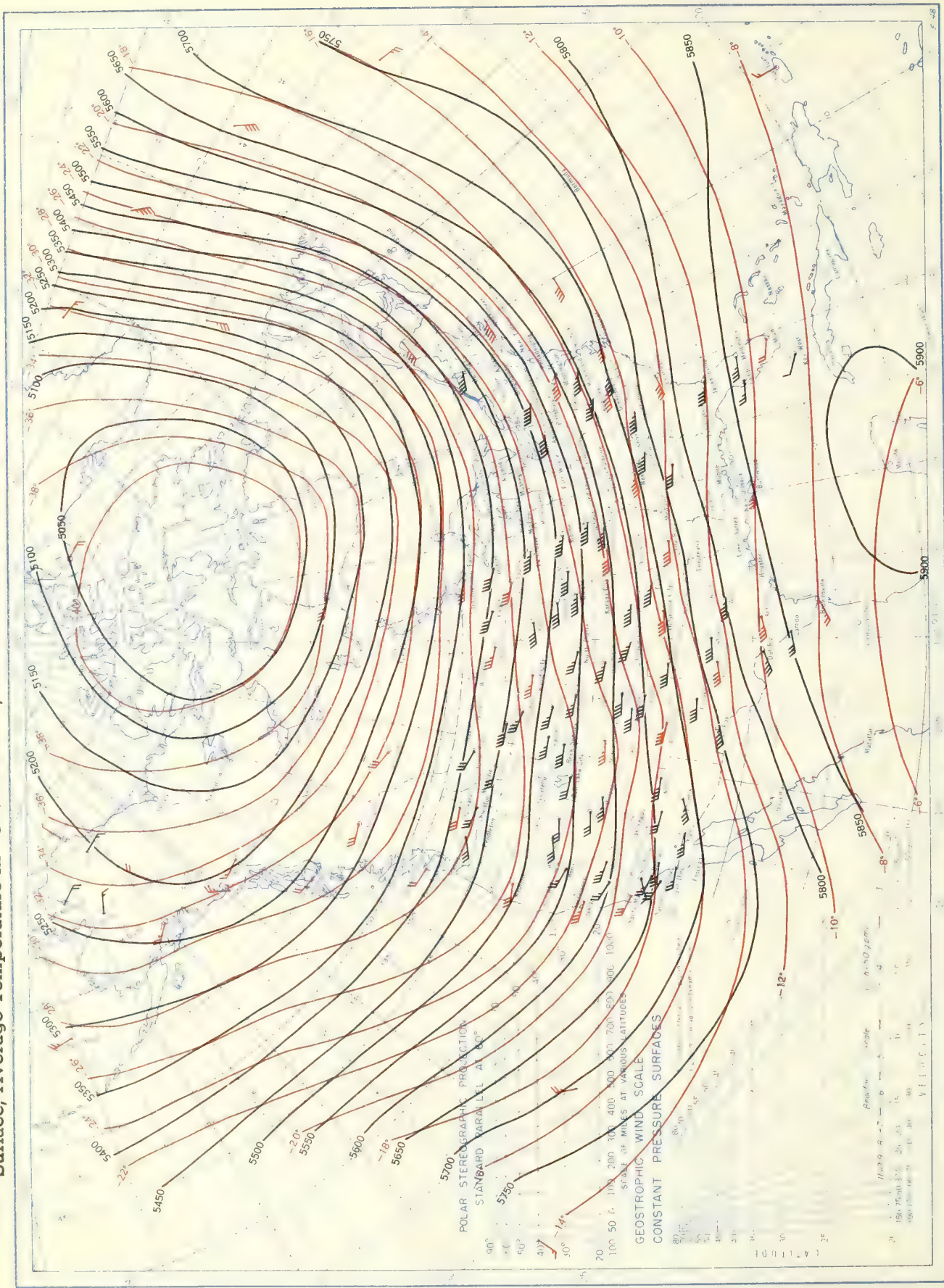
Chart shows average dynamic height in Geopotential meters (1 g.p.m. = 0.30 dynamic meters) of the 1000-mb. pressure surface, average temperature in °C. at 700 mb., and resultant winds at 3000 Meters (m.s.l.), January 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0800 G. M. T.



Chart XIV. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 500-mb. Pressure Surface, Average Temperature in °C. at 500 mb., and Resultant Winds at 5000 Meters (m.s.l.), January 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T.



those shown in red are based on rawins at 0300 G. M. I.

1







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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

FEBRUARY 1952

Volume 3 No. 2





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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

Volume 3 No. 2

FEBRUARY 1952

### GENERAL SUMMARY OF WEATHER CONDITIONS

Unseasonably mild temperatures and near-normal precipitation characterized February 1952. This was the third consecutive February warmer than normal in practically all areas, and the 5th consecutive February with above-normal temperatures in most areas east of the Mississippi River. There were no damaging freezes in the South, and no unusually low extremes anywhere. During the first half of the month abnormally warm weather prevailed, especially in the north-central interior where temperatures averaged  $15^{\circ}$  to  $20^{\circ}$  above normal. Monthly departures of precipitation were uneven with excesses and deficiencies generally only moderate. Precipitation was fairly well spaced through the month and there were no serious floods. Pressure was above normal west of the Continental Divide but below elsewhere. Low pressure systems generally were weak, only a few gaining moderate intensity. Sunshine was above normal west of the Continental Divide, deficient in central areas, and about normal elsewhere. Thunderstorm activity east of the Rocky Mountains was much more frequent than usual for February. Snowfall, which was above normal with some heavy storms in the far western and extreme northern portions of the country, was the most outstanding feature of the month's weather.

The average temperature for the United States was  $36.9^{\circ}$  which was  $2.4^{\circ}$  above the long-term mean. This average equaled that of 1950 and was  $1.1^{\circ}$  higher than the 1951 average. Average monthly temperatures ranged from slightly more than  $70^{\circ}$  in extreme southern Florida and extreme southern Texas to near zero at some of the high stations in the central Rockies. On the West Coast average monthly temperatures ranged from  $58^{\circ}$  at San Diego, Calif., to  $43^{\circ}$  at Tatoosh Island, Wash.; in central portions of the country from  $67^{\circ}$  at Brownsville, Tex., to  $16^{\circ}$  at International Falls, Minn.; and along the Atlantic Coast from  $67^{\circ}$  at Miami, Fla., to  $26^{\circ}$  at Eastport, Maine. Monthly temperature departures from normal were minus in southern Florida, and west of the Continental Divide except along the Coast and in the Columbia and lower Colorado River Valleys. Minus departures were greatest in the central portion of the far western plateau, principally southern Idaho, eastern Nevada, and most of Utah where they exceeded  $4^{\circ}$ . Plus departures were greatest in the northern Great Plains and upper Mississippi Valley where they ranged up to more than  $10^{\circ}$ .

Temperature extremes were well within the limits of previous records. The highest temperature recorded during the month was  $98^{\circ}$  at McCook, Tex. on the 29th, and the lowest was  $-40^{\circ}$  at Farson, Wyo. on the 19th and Fraser, Colo. on the 25th. Highest temperatures for the month generally occurred on various dates during the first half of the month; however, a number of stations in the Southwest, the Mississippi Valley, and along the north Atlantic Coast recorded the maxima during the closing days. Along the Atlantic Coast lowest temperatures gen-

erally were recorded on the 1st or 8th, in the north-central interior and Northwest from about the 21st to the 25th, and elsewhere generally on various dates during the last half. In many Gulf Coastal sections minimum temperatures were above freezing during the entire month. Minima of zero or lower were not recorded farther south than northwestern Kansas in the Great Plains, and did not occur in Missouri, Illinois, Indiana, Ohio, West Virginia, Maryland or New Jersey. In Missouri this was the first February since state-wide records began in 1888 that the minimum failed to fall lower than  $11^{\circ}$ ; the highest previous minimum was  $7^{\circ}$  in 1915.

Precipitation for the United States averaged 1.91 inches which is 0.20 inch below the long-term mean. Precipitation was well spaced through the month in most areas, and there were no unusual extremes. The areal distribution, however, was uneven, with above- and below-normal totals occurring in short distances. Excesses for the most part occurred along the Gulf and Atlantic Coasts, in the northern Rockies, and in portions of the northern Great Plains, with totals at many stations in these areas exceeding 200 percent of normal. The percentage of normal precipitation was generally lowest in the western portion of the lower Great Plains and the far Southwest where totals were generally less than 50 percent. In some sections of the lower Great Plains precipitation had been deficient for several previous months, and the soil was very dry and subject to erosion. Soil erosion or dust storms were reported from southwestern Colorado and parts of Texas and Oklahoma. The greatest monthly total precipitation was 21.09 inches at Orange, Tex. and the greatest 24-hour amount, 9.41 inches, at Port Arthur, Tex., on the 1st. Monthly totals too small to measure were reported from about 50 scattered stations in the Southwest.

Snowfall was generally above normal in extreme northern areas and the far West, also in the vicinity of El Paso, Tex., in Oklahoma, northern Arkansas, and in a belt from north-central Virginia through the western portions of the Carolinas to central Georgia. In this latter belt most of the snow fell from the 23d to the 26th, with depths at the end of the storm ranging up to 8 inches or more; monthly totals ranged up to 500 percent of normal. In West Virginia and from Virginia northward through Pennsylvania, Maryland, Delaware, and New Jersey, snowfall was much below normal, with many stations in the coastal plains reporting no snow at all and some inland stations reporting only traces.

In New York and New England snowfall was above normal, heavy storms occurring in parts of New England on the 12th, 17th and 27th. Maine received 12 to 30 inches of snow on the 12th and again on the 17th, and Cape Cod, Nantucket, and Martha's Vineyard received 20 inches or more on the 27th. Gale winds accompanying each storm caused high



# GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

FEBRUARY 1952

drifts; communications were disrupted and thousands of motorists were stranded. North Bridgeton, Maine, reported a depth of 61 inches of snow on the ground on the 19th and depths at many other stations in the State were only a little less. At the end of the month snow depths in New England ranged from 3 to 12 inches in the south and 1 to 5 feet in the northern half.

In north-central areas the heaviest snow fell in South Dakota on the 19th. After this storm depths ranged from 4 to 30 inches over the entire State. Typical of conditions prevailing in much of the State that day, Pierre received 17 inches of snow and winds reached 55 m.p.h.

In the far West snowfall was above normal in most areas, especially in the Cascade Mountains of Oregon and the Sierra Nevada Mountains of California. This is the third month with above-normal snowfall in the far West, and the snowpack in some areas is one of the heaviest on record. Soda Springs, Calif. reported 218 inches on the ground, the greatest depth since records began in 1930. Norden, Calif., reported 251 inches, a depth exceeded only by depths of 305 inches in March 1907 and 1911.

The snowcover during the month seldom extended farther south than the Lake Region east of the Rockies; however, a deep cover prevailed at higher elevations in the far West and in extreme northern areas.

Even though low pressure systems failed to gain strong intensity over land, high winds occurred over wide areas. Minneapolis, Minn., recorded a February record wind speed of 52 m.p.h. on the 10th; and an all-time record speed of 59 m.p.h. occurred at Tucson, Ariz., on the 26th. Speeds above 60 m.p.h. were recorded at such widely scattered stations as Miami, Fla., and Roswell, N. Mex., on the 2d; Billings, Mont., on the 4th; Mobile, Ala., on the 15th; New York City on the

18th; Nantucket, Mass., on the 27th; Eastport, Maine, on the 28th; and Chattanooga, Tenn., on the 29th.

The frequency of severe local storms was above average. The total number of tornadoes was 31 which may be compared with an average February total of 5 for the period 1916 through 1950. The past winter (Dec. 1951–Feb. 1952) has been an unusual one for tornadoes, 54 having occurred which may be compared with an average of 12. All of the 31 February tornadoes occurred in southern areas, and nearly all of them on the 13th and 29th in an area comprising Tennessee, Arkansas, the "Boot Heel" section of Missouri, and the northern portions of Mississippi, Alabama, and Georgia. The greatest destruction occurred in Tennessee where at least 5 persons were killed, 20 injured, and damage was estimated in excess of \$4,000,000. Of the total damage in this State, single tornadoes on the 13th and 29th caused about \$1,000,000 and \$3,000,000 respectively. Hailstorms occurred in Mississippi on the 13th, Texas on the 11th, and near Sacramento, Calif., on the 20th. Reported hail damage was \$23,000 in Mississippi and \$75,000 in Texas. Hailstones as big as baseballs were reported to have fallen during the Texas storm. Intensified Lows off the Coast of New England on the 12th and 17th with high winds and heavy snow resulted in considerable damage and the death of several persons. On the 8th and 9th another Low crossed Indiana, Ohio, West Virginia, and Pennsylvania, with wind gusts of 80 and 90 m.p.h. reported. This storm caused minor damage in several sections.

February weather conditions were generally satisfactory for Agriculture. The most unfavorable feature was the lack of moisture in the western portion of the lower Great Plains where winter-grain prospects were only poor to fair in many sections of this area at the end of the month.



# CONDENSED CLIMATOLOGICAL SUMMARY

Table 1

FEBRUARY 1952

Section	Temperature							Precipitation						
	Average	Departure from normal	Monthly extremes						Average	Departure from normal	Monthly extremes			
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least
	*F.	*F.		*F.			*F.		In.	In.		In.		In.
Alabama	51.9	+2.9	Citronelle	83	14	2 Stations	-20	07	4.15	-1.08	Bay Minette	9.66	Pickensville	1.56
Arizona	43.4	-1.6	Yuma WB AP	84	01	Fort Valley	-13	15	.33	-.93	Young	1.18	8 Stations	.00
Arkansas	48.4	+4.7	Crossett	84	29	Lead Hill	2	17	3.63	+0.04	Warren	7.43	Ratcliff	.85
California	46.7	-.6	2 Stations	87	01	Boca	-23	13	2.52	-1.34	Strawberry Valley	19.01	11 Stations	.00
Colorado	26.7	-.6	Las Animas 1N	74	27	Fraser	-40	25	.60	-.41	Wolf Cr. Pass 4W	4.20	5 Stations	T
Connecticut	30.8	+4.0	3 Stations	54	02	2 Stations	2	24	2.59	-.87	Norfolk 2SW	4.02	Stafford Springs	1.47
Delaware	38.3	+3.6	Georgetown	60	4	Newark College Farm	15	15	2.58	-.62	Willsboro	2.96	Dover	2.03
Florida	61.3	+7	Hyopoluxo	89	16	Glen Saint Mary	26	8	5.63	+2.58	Crescent City 2SW	10.95	Cape Sable Ranger Sta.	1.46
Georgia	52.1	+2.3	3 Stations	80	013	2 Stations	14	1	4.90	+0.27	Donelsonville 3W	10.83	Dallas	2.03
Idaho	23.4	-4.6	Orofino	62	4	do	35	022	1.71	-.01	Anderson Dam	8.15	May R S	.35
Illinois	36.4	+6.5	East Saint Louis	75	10	Aurora College	8	22	1.67	-.25	Glendale Exp. Farm	4.84	Wheaton College	.14
Indiana	35.6	+5.0	Salem 1W	68	10	Wheatfield	-7	7	2.46	+0.06	W. Baden Springs Col.	4.44	Whiting	.31
Iowa	31.3	+8.7	Keosauqua	64	27	Inwood 2W	-7	23	.66	-.43	Rock Rapids	1.47	2 Stations	.15
Kansas	39.4	+5.4	2 Stations	75	18	Sharon Springs	-3	25	.62	-.36	Pittsburg	4.07	Alton 6E	.07
Kentucky	41.4	+4.1	Madisonville 1SE	74	28	Mount Sterling	10	22	2.64	-.87	Henderson 4SW	4.52	Dunnville	1.13
Louisiana	56.8	+3.2	Pine Grove Tower	89	14	4 Stations	-25	05	6.69	+2.21	Reserve	12.75	Converse	2.74
Maine	21.9	+3.7	4 Stations	48	02	Lac Frontier	27	8	4.33	+1.39	Lewiston	6.39	Jackman	2.12
Maryland	38.5	+4.9	West Lanham Hills	65	2	Greenbelt	-5	1	2.10	-.80	Princess Anne	3.81	Cumberland Pol.Brks.	.95
Massachusetts	30.0	+3.6	Weymouth 1E	55	4	Lake Cochituate	-4	1	3.93	+0.55	Nantucket WB AP	8.07	Hardwick	1.33
Michigan	25.0	+4.9	3 Stations	54	10	3 Stations	-21	014	.98	-.66	Hulbert	2.29	Ontonagon	.07
Minnesota	20.6	+8.3	Springfield	51	12	Long Prairie	-27	22	.64	-.11	Marshall	2.47	2 Stations	.00
Mississippi	53.7	+4.0	Belzoni	84	13	Water Valley	22	7	4.59	-.39	Pearlington	10.47	Kosciusko 2SSE	2.18
Missouri	40.2	+6.5	Anderson 1SW	78	27	5 Stations	11	17	2.25	+0.15	Dexter	5.33	Milan	.35
Montana	23.3	+2.3	2 Stations	64	011	Circle 7N	-34	24	.80	+0.19	Hebegen Dam	2.72	Grant	.04
Nebraska	33.0	+6.6	do	70	11	Bridgeport	-14	25	.90	+0.21	Oshkosh BSW	1.99	2 Stations	.20
Nevada	33.0	-2.1	Las Vegas	75	27	Fish Creek Ranch	-21	14	.57	-.44	Glenbrook	2.89	9 Stations	.00
New Hampshire	23.7	+4.1	Windham	53	2	First Conn Lake	-15	16	3.45	+0.76	Pinkham Notch	7.79	Lakeport 2	1.51
New Jersey	35.2	+4.3	Belleplain	58	5	2 Stations	7	01	2.25	-1.17	2 Stations	3.38	Sandy Hook	1.51
New Mexico	37.8	-.4	Jal	80	9	do	-20	20	.38	-.31	Lake Maloya	2.70	2 Stations	.00
New York	26.7	+4.0	Elmira	60	2	Saranac Lake	-20	15	2.37	-.30	Little Valley	6.26	Lawrenceville	1.20
North Carolina	45.2	+2.3	2 Stations	76	11	Celo	-6	1	4.48	+0.52	Coweeta No. 8	7.14	Ivy	1.17
North Dakota	17.4	+6.9	Medora 4NNE	51	11	Mott	-31	21	.59	+0.12	Gackle	1.93	Walhalla	.00
Ohio	34.4	+4.3	Hamilton Water Works	68	8	New Lexington 1N	8	18	2.24	-.16	Alexandria 4W	3.76	Merion Water Works	.85
Oklahoma	46.6	+3.9	4 Stations	81	10	3 Stations	11	016	1.52	-.09	Carnasaw Tower	6.06	Goodwell	.06
Oregon	34.2	-1.6	Canary	75	7	Seneca	-25	22	3.26	-.06	Valsetz	14.00	Rome	.39
Pennsylvania	32.9	+4.3	5 Stations	59	01	Coudersport 1NNE	-11	14	2.23	.55	Putneyville 2SE	4.47	Mt. Gretna 2SE	.34
Rhode Island	32.6	+3.5	2 Stations	52	02	Greenville	10	14	4.05	+0.55	Providence WB City	4.57	Greenville	3.00
South Carolina	49.0	+1.1	4 Stations	78	011	Camden 2WSW	17	1	4.48	+0.43	Summerville 2WNW	6.55	Aiken	2.55
South Dakota	24.6	+5.3	Longvalley	67	11	Ralph	-30	21	.99	+0.44	Pierre CAA AP	2.66	Gannvalley	.15
Tennessee	45.3	+4.0	Bolivar 2	75	29	2 Stations	16	01	3.40	-1.10	Memphis WB AP	6.39	Limestone TVA	.78
Texas	53.7	+3.2	McCook	98	29	Miami	6	26	1.65	+0.09	Orange	21.09	6 Stations	.00
Utah	26.1	-4.0	2 Stations	69	026	2 Stations	-31	019	.80	-.46	Silver Lake Brighton	4.97	2 Stations	.00
Vermont	22.4	+4.3	Bellows Falls	53	3	Bloomfield	-15	16	2.92	+0.43	Wardsboro	4.45	Lemington	1.36
Virginia	40.7	+3.4	Danville	70	29	Fredericksburg	9	1	2.85	-.16	Wallaceton Lk.Drummond	5.90	High Knob	1.09
Washington	35.0	+4	Kosmos	68	10	Bumping Lake	-19	21	2.47	-1.06	Naselle	12.33	Irene Mt. Wauconda	.26
West Virginia	37.8	+4.2	2 Stations	69	09	Canaan Valley	4	26	1.84	-1.27	Hastings	3.18	Birch River 6SSW	.43
Wisconsin	23.6	+8.7	do	51	12	Danbury	-25	22	.64	-.56	Cashton	1.45	Rainbow Reservoir	.13
Wyoming	22.6	+4.1	5 Stations	65	010	Ferson	-40	19	.80	+0.02	Moose 3NW	3.91	2 Stations	T
Alaska*	18.3	+6.3	3 Stations	58	05	Northway WB	-38	16	1.94	+0.02	Cordova WB	4.48	Matanuska Valley 9	.14
Hawaii**	68.5	-.5	Puunene CAA	90	18	Haleakala R S	35	16	9.48	+2.25	Kukui	42.00	Lualualei	1.68

\* Other dates also.

\* November 1951.

\*\* January 1952.



## CLIMATOLOGICAL DATA

Table 2

FEBRUARY 1952

[illegible]

See footnotes at end of table.



## CLIMATOLOGICAL DATA

Table 2-Continued

FEBRUARY 1952

State and station	Elevation (ground)	Pressure			Temperature										Precipitation					Wind			No. of days (sunrise to sunset)															
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest:	Date	Lowest	Date	No. of days	No. 90° F or above	No. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days .01 inch or more	With thunderstorms	Total	Snow, Sleet, Hail	Max depth on ground	Average hourly speed	Prevailing direction	Fastest mile		Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine					
																											Speed	Direction						0-3	4-7	8-10	10-10	%
Indiana		Mb	Mb	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	In.	In.	In.	In.	In.	In.	In.	M	p. h.	M	p. h.											
Evansville	385	999.7	1015.8	49	32	40.7	+5.6	66	10	24	9	0	18	33	78	4.41	+1.07	1.11	12	3	4	4.4	4	10.8	E	36	W	8	9	3	17	6.8	4					
Port Wayne	801	983.1	1015.2	39	25	32.0	+5.4	54	10	11	7	0	27	26	82	2.38	-.05	.87	7	1	9.3	7	9.3	NE	33	SW	10	2	7	20	7.2	4						
Indianapolis	796	985.4	1015.6	43	27	35.3	+5.0	60	28	19	26	0	25	28	80	2.71	-.12	.86	8	0	2.1	2	11.5	E	50	W	8	13	9	17	7.4	47						
South Bend	768	987.1	1015.7	39	23	31.1	+5.7	54	10	16	7	0	27	23	80	.88	-.82	.50	8	0	2.4	1	12.3	E	35	NW	8	4	3	22	8.1	4						
Terre Haute	985	994.6	1015.9	46	28	37.0	+5.7	60	10	18	26	0	23	21	80	2.00	-.72	.66	11	1	2.7	1	10.0	---	43	W	8	5	9	15	7.3	40						
Iowa																																						
Burlington	605	989.8	1016.1	41	25	33.2	+6.6	60	27	17	17	0	28	25	80	.95	-.85	.48	7	1	5.6	3	10.6	N	40	NW	8	5	6	18	7.5	54						
Charles City CO	1013	978.3	-----	35	23	28.6	+11.5	48	12	6	22	0	29	21	80	.41	-.72	.29	4	0	3.4	4	6.4	---	21	N	8	6	10	13	6.4	44						
Davenport CO	579	993.9	-----	39	27	32.9	+8.0	54	10	17	25	0	29	17	81	1.14	-.48	.49	7	0	5.8	4	12.8	E	30	W	8	12	7	17	7.8	47						
Des Moines	800	984.4	1016.7	39	25	32.3	+8.6	54	27	13	21	0	27	26	79	.77	-.39	.29	7	1	3.2	2	11.9	WNW	56	W	20	4	7	18	7.6	43						
Dubuque	641	975.3	1015.7	35	23	29.0	---	48	12	8	22	0	29	23	73	.37	---	.13	7	0	4.2	2	9.6	---	34	WNW	10	5	7	17	7.2	40						
Sioux City	1097	973.9	1016.5	39	23	30.9	+10.5	53	11	7	25	0	28	20	83	.69	-.15	.36	7	2	2.5	1	8.2	NW	35	N	8	6	6	17	7.1	52						
Kansas																																						
Concordia CO	1375	965.1	-----	48	28	38.1	+8.3	65	11	17	21	0	24	23	62	.52	-.40	.28	5	0	2.3	1	7.8	N	25	W	19	13	5	11	5.1	59						
Jodge City	2594	925.2	1015.1	51	27	38.7	+5.5	71	18	12	25	0	27	21	80	.35	-.46	.27	5	0	2.5	3	14.1	---	47	NW	5	15	4	10	4.7	67						
Goodland	3645	985.9	1015.6	48	27	32.8	+4.2	68	27	1	25	0	29	17	81	1.18	-.38	.19	5	0	2.9	1	10.7	NNE	33	NW	8	10	4	15	6.1	57						
Topeka	926	979.3	1016.2	49	28	36.6	+6.5	66	27	18	21	0	25	29	74	.46	---	.21	1	1	.9	1	10.7	N	40	NW	5	11	5	13	5.6	61						
Wichita	1372	965.8	1015.3	50	31	40.5	+6.1	67	18	20	21	0	19	29	70	.35	-.95	.18	7	2	.5	1	12.9	N	40	NW	5	11	5	13	5.6	61						
Kentucky																																						
Lexington	979	977.7	1015.5	48	30	38.9	+3.5	64	10	20	22	0	22	29	69	2.68	-1.01	.76	7	1	1.8	1	11.7	WNW	27	---	---	4	9	16	7.3	---						
Louisville CO	457	-----	-----	48	33	40.8	+3.6	65	10	27	26	0	15	21	80	2.84	-.80	.80	9	2	2.5	2	2.2	---	---	---	---	---	---	---	---	---						
Louisville	485	998.6	1015.1	49	32	40.7	+4.7	66	10	24	22	0	19	31	70	2.90	-.74	.86	11	1	3.3	2	9.9	N	57	SW	8	7	7	15	7.1	46						
Louisiana																																						
Baton Rouge	64	1009.5	1015.3	67	49	58.0	+2.9	81	14	36	7	0	0	48	75	4.66	-.16	1.07	13	1	.0	0	9.8	SW	---	---	---	5	10	14	6.9	---						
Lake Charles	12	1014.2	1015.5	67	50	58.4	+3.2	80	29	35	17	0	0	52	89	7.96	+3.57	4.14	12	5	.0	0	12.0	SW	---	---	---	6	4	19	7.1	---						
New Orleans CO	12	1013.5	-----	67	53	60.0	+2.7	80	13	41	27	0	0	---	---	10.08	+5.70	3.37	13	3	.0	0	7.5	---	23	N	14	5	12	12	6.4	49						
New Orleans	12	1013.5	1015.9	67	50	58.8	---	80	13	37	7	0	0	51	80	8.06	---	3.44	12	3	.0	0	11.0	S	45	NE	14	6	6	17	7.0	---						
Shreveport	174	1005.8	1014.9	64	44	54.1	+3.1	79	29	30	5	0	2	41	62	5.76	+2.36	2.86	11	4	T	0	11.2	SW	41	W	29	9	4	16	6.4	50						
Maine																																						
Caribou	624	987.1	1011.1	25	8	16.8	+6.1	36	2	-8	24	0	29	10	74	2.61	+6.0	.98	14	0	41.0	51	12.8	N	445	NW	28	3	1	25	8.3	---						
Sastport CO	33	1006.4	1009.5	32	20	26.1	+4.6	45	4	7	13	0	28	21	80	5.47	+1.98	1.59	10	0	41.8	17	14.1	---	68	N	28	4	3	22	7.8	39						
Portland	61	1007.5	1011.5	35	17	26.0	+4.2	48	2	3	0	0	27	20	80	5.66	+1.50	2.66	10	0	34.8	27	10.7	WNW	58	N	18	10	6	13	5.7	63						
Maryland																																						
Baltimore CO	14	-----	-----	48	35	41.4	+6.0	58	2	25	15	0	9	24	59	2.23	-1.26	1.55	3	0	---	---	---	---	---	---	---	---	---	---	---	---						
Baltimore	146	1013.3	1015.1	48	31	39.3	+3.6	59	1	20	1	0	22	24	59	2.59	-.50	1.75	3	0	T	0	11.4	NW	48	W	11	7	11	11	6.1	54						
Federick	294	-----	-----	48	28	38.0	+3.9	57	2	12	15	0	21	21	80	1.96	-.72	1.15	4	0	T	0	---	---	---	---	---	---	---	---	---	---						
Massachusetts																																						
Blue Hill Obs.	640	987.1	-----	37	22	29.3	+4.3	48	2	9	14	0	26	21	72	5.64	+1.82	2.74	13	0	26.1	16	18.2	WNW	52	NNW	18	9	8	12	5.7	51						
Boston	12	1006.4	1011.3	39	26	32.5	+3.7	52	2	14	13	0	24	21	67	4.71	+1.21	1.93	15	1	19.1	9	16.0	NW	57	N	18	11	6	12	5.5	55						
Nantucket	43	1010.5	1010.8	40	27	33.4	+3.7	51	4	18	14	0	25	27	77	8.07	+4.70	2.30	11	3	36.4	23	16.5	NNW	61	NW	27	13	4	12	5.4	58						
Pittsfield	1153	968.8	1012.5	34	16	24.6	+3.3	45	1	1	13	0	28	21	80	2.17	-.66	.65	11	0	20.2	15	---	---	---	---	---	10	8	11	5.5	---						
Michigan																																						
Alpena CO	587	992.6	-----	31	18	24.4	+6.4	46	1	5	15	0	28	21	80	.75	-1.02	.38	12	0	4.5	9	9.8	---	37	SE	10	3	5	19	7.5	46						
Detroit	619	987.8	1015.7	35	23	29.3	+4.5	47	1	12	14	0	27	21	78	1.60	-.64	.80	11	0	7.3	2	9.6	NW	38	NW	11	2	8	19	8.0	40						
Escanaba CO	594	993.2	-----	31	15	23.4	+7.8	41	1	1	14	0	29	21	80	.35	-1.20	.19	6	0	5.9	13	8.8	---	36	NW	11	3	11	15	7.1	61						
Grand Rapids	638	989.8	1015.8	35	21	28.3	+7.4	50	10	9	23	0	28	23	82	1.02	-1.29	.39	13	1	12.6	5	9.9	E	35	S	10	2	5	22	8.3	27						
Lansing	859	982.7	1016.1	34	21	27.5	+5.3	47	1	8	23	0	28	21	80	1.64	-.32	.63	12	0	10.5	4	12.7	W	40	S	10	3	8	18	7.8	30						
Marquette CO	677	987.5	-----	30	17	23.4	+7.1	40	3	3	14	0	29	21	80	.75	-1.22	.29	10	0	12.6	22	7.4	ENE	30	N	10	1	5	23	8.7	45						
Muskegon	627	992.2	1015.9	34	22	28.0	+4.2	43	10	10	33	0	29	21	80	.94	-.86	.30	10	0	10.0	5	9.2	---	28	SSW	10	4	3	22	8.1	---						
Sault Ste. Marie	721	991.9	1016.1	38	11	19.7	+8.3	39	1	-7	14	0	29	12	80	.59	-.89	.29	10	0	12.2	16	7.9	NW	27	SE	10	3	9	17	7.6	53						
Paultant	722	986.1	1015.3	26	13	29.5	---	48	10	12	14	0	27	21	76	1.33	---	.70	7	0	4.1	3	11.1	SW	*30	W	10	3	5	21	8.1	---						
Minnesota																																						
Duluth	1128	973.6	1016.3	28	10	19.3	+7.9	35	1	-3	22																											

See footnotes at end of table.



## FEBRUARY 19

FEBRUARY 19

See footnotes at end of table.



## CLIMATOLOGICAL DATA

Table 2--Continued

FEBRUARY 1952

State and station	Elevation (ground)	Pressure		Temperature										Precipitation					Wind				No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
		Station	Sea level	Average maximum		Average minimum		Average	Departure from normal		Highest	Date	Lowest	Date	No. of days 90° F. or above		No. of days 32° F. or below		Average dew point	Average relative humidity	Total	Departure from normal		Greatest in 24 hours	No. of days .01 inch or more		Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		Date	Clear		Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
				°F	°F	°F	°F		°F	°F					°F	°F	°F	°F				°F	°F		°F	°F	°F	°F			°F	°F		°F	°F					°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F



## CLIMATOLOGICAL DATA

Table 2-Continued

FEBRUARY 1952

State and station	Elevation (ground)	Pressure		Temperature										Precipitation										Wind				No. of days		Possible sunshine		
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile			to sunset				
												Max. 90° F. or above	Min. 32° F. or below						.01 inch or more	With thunderstorms	Total	Max. depth on ground			Speed	Direction	Date	Clear	Partly cloudy		Cloudy	
Ft.	Mb.	Mb.	*F.	*F.	*F.	*F.	*F.	*F.		*F.	%	In.	In.	In.			In.	In.	M. p. h.	M. p. h.			0-3	4-7	8-10	0-10	%					
PACIFIC AREA																																
Canton Island	9	1007.5	1007.9	91	79	84.8	-----	96	29	76	10	21	0	75	78	0.05	-----	0.03	3	0	0.0	0	-----	---	---	---	---	6	23	0	4.6	--
Hilo	28	1015.6	1017.2	78	63	70.5	-----	82	15	60	2	0	0	63	82	7.76	-----	1.44	24	0	.0	0	5.4	SW	32	SW	27	4	10	15	7.0	39
Honolulu CO	12	-----	-----	77	68	72.6	+1.8	80	17	66	12	0	0	---	---	.76	-3.11	.40	10	1	.0	0	-----	---	---	---	---	---	---	---	---	---
Honolulu	7	1017.3	1017.9	79	67	72.9	-----	82	14	63	8	0	0	62	71	.48	-----	.15	6	1	.0	0	10.2	ENE	30	NE	20	9	16	4	4.8	72
Koror	117	1004.4	1008.2	87	75	80.8	-----	89	27	72	28	0	0	---	---	6.66	-----	1.73	19	0	.0	0	-----	---	---	---	---	---	---	---	---	---
Libue	115	1012.5	1018.2	77	65	71.2	-----	78	26	59	12	0	0	64	78	1.69	-----	.43	15	2	.0	0	11.2	NE	29	NE	20	5	16	8	6.1	54
Moan Is., Truk Gp	3	1009.8	1010.1	85	76	80.6	-----	86	5	72	1	0	0	---	---	2.93	-----	.61	15	0	.0	0	-----	---	---	---	---	---	---	---	---	---
Wake Island	9	1015.6	1015.9	81	73	77.1	-----	83	24	71	27	0	0	68	75	.35	-----	.14	8	0	.0	0	13.8	ENE	---	---	---	18	11	0	3.1	--
Yap	51	1008.5	1010.5	85	76	80.3	-----	86	5	74	1	0	0	---	---	3.27	-----	1.03	17	0	.0	0	-----	---	---	---	---	0	3	26	9.3	--
Ponape (December)	109	1005.8	1010.9	87	74	80.9	-----	91	9	72	14	0	0	---	---	13.36	-----	2.02	26	1	.0	0	-----	---	---	---	---	---	---	---	---	---
WEST INDIES																																
San Juan, P.R. CO	47	-----	-----	81	69	75.0	.0	89	27	66	*3	0	0	---	---	3.25	+4.1	1.76	10	---	---	-----	---	---	---	---	---	---	---	---	---	---
San Juan, P.R.	9	1015.9	1015.9	81	69	75.1	-----	86	27	65	3	0	0	68	80	4.13	-----	1.88	11	0	.0	0	6.2	ESE	34	S	17	11	11	7	5.0	67

Data from airport unless otherwise specified. CO indicates data from city office.

\* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

† Peak gusts.

° Other dates also.



# HEATING DEGREE DAYS

Table 3

(Base 65°F.)

FEBRUARY 1952

State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month
	This month	Period July through this month	Long term mean July through this month			This month	Period July through this month	Long term mean July through this month			This month	Period July through this month	Long term mean July through this month			This month	Period July through this month	Long term mean July through this month	
ALABAMA				IOWA				NEW JERSEY (Cont'd.)				TEXAS (Cont'd.)							
Birmingham	423	1930	2053	Burlington	917	4740	4167	Newark	842	3562	4067	Austin	218	1129	1443				
Mobile (CO)	218	1062	1304	Charles City (CO)	1052	5827	5760	Trenton	818	3488	3769	Big Spring	404	1844	2193				
Mobile	248	1145		Davenport (CO)	927	4727	4739	NEW MEXICO				Brownsville	70	336	551				
Montgomery (CO)	314	1441	1713	Des Moines	942	5195	4902	Albuquerque	738	3309	3446	Corpus Christi	113	574	851				
Montgomery	335	1535	1731	Dubuque	1038	5661	5237	Clayton	790	3822	3688	Dallas	313	1594	1962				
ARIZONA				Keokuk (CO)	835	4265	4351	Raton	942	4558		Del Rio (CO)	176	961	1325				
Flagstaff	1066	5295	4989	Sioux City	982	5603	5308	Roswell	574	2679	2868	El Paso	499	1995	2122				
Payson (CO)	684	3075		KANSAS				NEW YORK				Ft. Worth	311	1598	1962				
Phoenix (CO)	281	1206	1228	Concordia (CO)	775	4220	4165	Albany	1094	5098	4899	Galveston (CO)	159	665	1015				
Phoenix	306	1311		Dodge City	758	3899	3896	Bear Mountain (CO)	1038	4658		Galveston	160	684					
Prescott	755	3458		Goodland	929	4702	4215	Binghamton	1138	5227	4937	Houston (CO)	176	818					
Tucson	386	1408		Topeka (CO)	746	3985	3976	Buffalo	1036	4669	4811	Houston	195	873	1148				
Winslow	785	3537		Topeka	701	4081		New York (CO)	821	3395	3842	Laredo	91	514					
Yuma	156	858	928	Wichita	704	3657	3642	La Guardia Field	818	3336		Lubbock	593	2711					
ARKANSAS				KENTUCKY				Oswego	1050	4670	5016	Palestine (CO)	276	1336	1741				
Ft. Smith	505	2504	2626	Lexington	754	3483	3633	Rochester	1050	4742	1826	Port Arthur (CO)	177	817	1143				
Little Rock	432	2283	2458	Louisville (CO)	697	3247	3415	Schenectady (CO)	1057	4842		Port Arthur	211	939					
Texarkana	362	1800		Louisville	699	3349		Syracuse	1081	4782	4935	San Angelo	338	1571					
CALIFORNIA				Pikeville (CO)	637	2905		NORTH CAROLINA				San Antonio	197	1002	1249				
Bakersfield	354	1752	1772	LOUISIANA				Asheville (CO)	613	2904	3078	Victoria	769	1389					
Beaumont (CO)	485	2218		Baton Rouge	218	1035	1288	Asheville	650	3004		Waco	266	1385					
Bishop	680	3558	3355	Lake Charles	201	902		Charlotte	556	2331	2532	Wichita Falls	426	2129					
Blue Canyon	870	4182		New Orleans (CO)	166	777	1059	Greensboro	646	2811	2991	UTAH							
Burbank	270	1455		New Orleans	184	839		Hatteras	429	1611	1899	Milford	1057	5083					
Eureka (CO)	514	3234	3116	Int. Airport, Moisant	191	840		Raleigh (CO)	528	2234	2584	Salt Lake City (CO)	981	4385	4135				
Fresno	432	2025	1917	Shreveport	310	1508	1802	Raleigh	584	2434		Salt Lake City	1052	4761	4472				
Los Angeles (CO)	182	1005	980	MAINE				Wilmington (CO)	444	1696	1909	VERMONT							
Los Angeles	232	1115		Caribou	1391	6878		Winston-Salem	610	2711		Burlington	1175	5430	5690				
Mt. Shasta (CO)	830	4277		Eastport	1122	5202	5706	NORTH DAKOTA				VIRGINIA							
Oakland	406	2135	2147	Greenville (CO)	1361	6586	6684	Bismarck	1373	7503	6704	Cape Henry	599	2205	2587				
Red Bluff	463	2223	2066	Portland	1123	5219	5197	Devils Lake (CO)	1383	7891	7495	Lynchburg	678	3062	3093				
Sacramento (CO)	444	2144	2030	MARYLAND				Fargo	1401	7741	6990	Norfolk (CO)	565	2172	2560				
Sacramento	467	2171		Baltimore	681	2965	3365	Grand Forks	1420	7818	7373	Norfolk	615	2388					
Sandberg (CO)	687	3302		Frederick	777	3499		Pemba	1265	7615		Richmond (CO)	630	2703	2991				
San Diego	206	935	1094	MASSACHUSETTS				Williston (CO)	1356	7419	6904	Richmond	655	2848					
San Francisco (CO)	365	2492	2131	Boston	935	3997	4246	OHIO				Roanoke	662	3050	3176				
San Francisco	394	2321	2294	Milton	1034	4460		Akron	976	4587	1526	WASHINGTON							
San Jose	375	1801		Nantucket	909	3636	3887	Cincinnati (CO)	728	3310	3764	Ellensburg	1011	5428					
Santa Catalina	336	1682		Pittsfield	1168	5377		Cincinnati	811	3751		Kelso	684	3735					
Santa Maria	330	1966		MICHIGAN				Cleveland (CO)	925	4054	4407	North Head (CO)	673	3720	3421				
COLORADO				Alpena (CO)	1170	5641	5697	Cleveland	947	4284		Olympia	723	3841					
Alamosa	1212	6330		Detroit	1031	4620	4779	Columbus	878	4062	4098	Port Angeles	664	4091					
Colorado Springs	939	4597	1168	Escanaba (CO)	1202	6129	6077	Dayton	900	4125	4107	Seattle (CO)	602	3197	3160				
Denver	865	4380	4396	Grand Rapids (CO)	1004	4756	4869	Sandusky (CO)	946	4149	4423	Seattle	697	3803					
Grand Junction	968	4711	4149	Grand Rapids	1056	5095		Toledo	995	4569	4581	Spokane	1002	5312	4715				
Pueblo	812	4149		Lansing	1081	5143	5167	Youngstown	990	4583		Stampede Pass (CO)	1102	5483					
CONNECTICUT				Marquette (CO)	1199	6190	6044	OKLAHOMA				Stevenson (CO)	726	3814					
Bridgeport	906	3816		Muskegon	1068	5084		Oklahoma City (CO)	544	2716	2946	Tacoma (CO)	651	3502	3188				
Hartford	960	4230	1117	Smelt Ste. Marie	1308	6623	6468	Oklahoma City	558	2766		Tatoosh Island (CO)	641	4070	3920				
New Haven	911	3932	4240	Ypsilanti	1024	4748		Tulsa	567	2854		Walla Walla (CO)	692	3905	3759				
DELAWARE				MINNESOTA				UTAH				Yakima	876	4931	4378				
Wilmington	789	3453		Duluth (CO)	1266	7318	6852	OREGON				WEST VIRGINIA							
DIST. OF COLUMBIA				Duluth	1316	7462		Baker (CO)	1147	5449	5134	Charleston	695	3151					
Washington (CO)	679	2983	3442	International Falls	1400	8050		Burns (CO)	1152	5546		Elkins	854	4129	4246				
Washington	686	2958		Minneapolis	1192	6268	5992	Eugene	636	3319		Huntington	644	2947					
FLORIDA				Rochester	1179	6281		Meacham	1044	5546		Parkersburg (CO)	766	3444	3738				
Apalachicola	189	888	1019	St. Cloud	1319	7021	6592	Medford	713	3578	3404	Petersburg	766	3579					
Daytona Beach	172	540		St. Paul	1161	6163	5996	Penikese	751	4169		WISCONSIN							
Fort Myers	79	250	240	MISSISSIPPI				Portland (CO)	642	3182	3114	Green Bay	1233	6178	5768				
Jacksonville (CO)	183	781	961	Jackson	307	1515	1815	Portland	667	3474		La Crosse (CO)	1062	5689	5616				
Jacksonville	225	893		Meridian	314	1575	1820	Roseburg (CO)	578	2921	3048	La Crosse	1135	5989					
Key West (CO)	1	17	10	Vicksburg	277	1402	1719	Salem	703	3478		Madison (CO)	1074	5503	5476				
Key West	9	31		MISSOURI				Sexton Summit (CO)	815	3373		Milwaukee (CO)	1019	5099	5102				
Melbourne	198	317	150	Columbia	772	3911	3908	Troutdale	685	3514		Milwaukee	1043	5362					
Miami (CO)	37	122		Kansas City	737	3851	3880	PENNSYLVANIA				WYOMING							
Int. Airport, Hialeah	24	99		St. Joseph	799	4311	4144	Allentown	895	3268		Casper	1107	5613					
Miami Beach	16	55		St. Louis (CO)	701	3495	3566	Curwensville	1080	5222		Cheyenne	1046	5442	5223				
Orlando	134	467	1199	St. Louis	724	3655		Eric (CO)	961	4137	4457	Lander	1176	5952	5998				
Pensacola (CO)	975	204		Springfield	699	3610	3540	Harrisburg	1022	3830	4047	Rock Springs (CO)	1261	6047					
Tallahassee	233	939	478	MONTANA				Park Place	864	4894		Rock Springs	1317	6367					
Tampa	109	378		Billings	1043	5774		Philadelphia (CO)	752	3159	3544	Sheridan	1137	6002					



## SEVERE STORMS

Table 4

FEBRUARY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Orange, Orange County, Tex.	1	Afternoon	880	1	0	0	\$10,000	\$ 0	Tornado	Demolished one house, lifted another off its foundation, and took porch off a third residence in Victory Gardens community, southwest of Orange.
El Paso, Tex.	2	Afternoon					25,000		Wind	Damage to roofs, glass windows, and porches. Auto collision, due to dust, resulted in destruction of auto and damage to trailer. Paint and glass of autos sand-blasted. Several airplanes damaged. Peak gusts of 82 m.p.h.
Florida, southern portion	2-3						Minor	See remarks	Wind and rain	Tropical storm crossed extreme southern Florida during night of February 2-3, attended by winds up to 60 m.p.h. in gusts and rainfall that totaled from 2 to 4 inches. Wind and rain caused considerable damage to growing vegetable crops in Everglades and lower East Coast districts.
Bellingham, Wash.	4	4 a.m.- afternoon					See remarks		Wind	High southwest winds, accompanying a general storm that covered much of State, did minor damage in Bellingham Bay and Harbor. Three barges and several log rafts torn from their moorings, the rafts containing 2,000 logs being entirely torn apart. Property affected entirely recovered and little actual loss resulted.
Leavenworth-Stevens Pass, Wash.	4	Early a.m.- 10 a.m.			1		See remarks		Wind and snow, with snow- slides	A general storm brought warmer weather, high winds, and rather heavy snows and rains to Cascade Mountain area from Stevens Pass to Leavenworth and in a lesser degree to Blewett Pass. Some trees blown across main highway, but principal effect was development of more than 25 snowslides across main highway from Leavenworth to Stevens Pass. In Tumwater Canyon, a mile west of Leavenworth, a State highway employee was killed when his snowplow was buried by a slide. A number of cars on Pass highway marooned between slides, but no further casualties reported.
Washington, eastern portion	4	Early a.m.- afternoon					See remarks		Wind	High winds caused sporadic damage in Lincoln, Spokane, Walla Walla, and Yakima Counties. At Spokane (City) and at Harrington, Lincoln County, winds did occasional damage to power lines, causing some short circuits, and interrupted service. At Walla Walla (City) warm winds, rain, and snow meltage damaged some streets and highways. At Yakima Airport, an extreme wind speed of 62 m.p.h. destroyed a hangar and heavily damaged two small airplanes, with a total property damage estimated at \$11,000.
Ohio, entire State	8	Afternoon and evening			1	Several	2,000 in coun- ties only		do	Cold front entered western portion in early afternoon and reached eastern portion by early evening, accompanied by gusts of 50 to 90 m.p.h. Damage mostly to TV antennae, trees, and power and telephone lines. Several small aircraft, which broke moorings and overturned were damaged. One man electrocuted near Chauncey, when he touched power lines driven down by storm.
Indianapolis and vicinity, Ind.	8						2,500		do	Plate glass windows broken, wire utility poles downed, etc.
Pennsylvania, extreme southwestern counties	8-9	7 p.m., 8th- 3 a.m., 9th					See remarks		Winds and rain	Winds in western Washington County damaged roofing and windows. Gusts to 85 m.p.h. reported in Pittsburgh where trees and utility lines downed and several store windows broken. Uniontown and Irwin also reported damage to buildings, wires and TV antennae. Near Donegal, between 8 and 9 p.m. high winds lifted roof and rafters of a barn and dropped them on Rt. 31; a chicken coop blown over a 70-foot embankment onto Turnpike, and power lines into Donegal blown down, with an estimated loss of \$3,500. Ebensburg reported window damage of \$200.
Meyersdale, Pa.	8-9	9 p.m.- 1 a.m.							Wind	High winds littered roads with tree branches, toppled many TV antennae, damaged store windows and signs, and damaged at least one chimney. Speeds estimated at 60 m.p.h.
West Virginia, northern half	Evening of 8th- morning of 9th				1	2	10,000 or more	0	do	Wind speeds to over 75 m.p.h. preceded and accompanied rapidly moving cold front advancing from northwest. Damage estimated at \$1,500 suffered by two airplanes tied down at Parkersburg-Wood County Airport; many trees uprooted; plate glass windows shattered; power lines blown down; building roofs blown off; television antennae blown over; street lights shattered. Two small planes damaged when blown out of a partially completed hangar at Arthurdale. Corrugated-steel shed at Fulton (part of Wheeling) destroyed with loss estimated at \$5,000. Many communications and power failures.

See footnotes at end of table.



# SEVERE STORMS

Table 4—Continued

FEBRUARY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Gratz, Pa.	11	4-5 a.m.							Electrical	Lightning struck at least three buildings, but with relatively little damage at any one building.
Carlisle, Pa.	11	Early morning							do	Lightning struck power line pole and knocked it to the ground, breaking insulators and causing power failure for a short time. An automobile had several holes burned in the top and a small shed caught fire as a result of the short circuit.
Muenster, Cooke County, Tex.	11	1:30 p.m.	1,760				\$1,000		Wind	Buildings unroofed, and plate glass windows broken.
Carrollton, Dallas County, Tex.	11	2:15 p.m.	*5	12			75,000		Hail	Automobiles, houses, and barns damaged. Average hailstones 1 inch in diameter. Heavy damage to greenhouses. Some hail reported as large as baseballs.
Worcester, Middlesex, and Suffolk Counties, Mass.	12	Noon-midnight				2			Northwest gales	Minor local damage by gales to trees, power lines, signs, and dwellings. Two women blown off their feet in Boston, and hospitalized for bruises.
Maine	12								Snow and gales	In northern part of state, 12 to 30 inches of snow fell; said to have been the greatest snowstorm for 20 years; 1- to 20-foot drifts. Northern communities sealed off from traffic and communication; disrupted by gale, with gusts to 80 m.p.h.
Rodessa, Caddo Parish, La.	13	4 a.m.			0	0	25,000	\$ 0	Tornado and electrical	Moved northeastward from McLeod, Texas. Hail as far south as Vivian, La. One home burned by lightning; wall blown out of garage; three oil rigs downed; barn twisted off foundation.
Warren (12 miles northwest of Vicksburg), Miss.	13	3:30 p.m. and 7 p.m.					1,000	5,000	Hail	Broke windows and dented automobiles. Gardens and winter grains damaged.
Madison station (near), Madison County, Miss.	13	4 4:25 p.m.					7,000	10,000	do	Covered highway to depth of 2 to 3 inches. Some hailstones 2 inches in diameter. Windows broken, and automobiles damaged, some severely; roofs damaged on homes.
Buckeye community, Mississippi County, Ark.	13	4:30 p.m.		440	0	5	See remarks		Tornado	A small tornado demolished one home, tore roof from another, and scattered several outbuildings in Buckeye community 8 miles north of Manila. Funnel cloud observed from Manila. Five members of one family injured, two seriously. Path of storm narrow and short, extending from southwest to northeast.
Steele (10 miles west of), Mo.	13	5:10 p.m.	100		0	0	3,000	0	Tornado and hail	Two large barns destroyed, and several barns and houses damaged. Funnel dipped to ground only twice. Hail reported nearly simultaneously in same area and in neighboring Dunklin and New Madrid Counties. Hailstones fell for about 5 minutes; largest stones 1 inch in diameter. A few windows broken, due to accompanying wind.
Philadelphia (10 miles southeast of), Neshoba County, Miss.	13	7:30 p.m.			0	0	15,000	5,000	Tornado, hail, and electrical	Lightning damaged towers of radio station in Philadelphia. Hail broke windows and damaged cars. Windmill twisted by tornado. Gardens and oats damaged.
Davidson County, Tenn.	13	7:45 p.m.	200	**400	0	0	°15,000	°	Tornado	The "baby twister" smashed through a small valley striking the Poplar Farm between Newsom Station and Linton, heavily damaging two houses, a corn crib, and a shed full of machinery. One house was removed from its foundation and wrecked. Storm occurred in connection with a thunderstorm.
Howell, Lincoln County, Tenn.	13	9 p.m.	400	**700	0	1	°140,000	°	do	The tornado formed over Giles County, slightly damaging one house, then hedge-hopped over Lincoln, Moore, Franklin and Grundy Counties; a total distance of 60 miles, before dissipating in the vicinity of Tracy City. It struck first at the community of Howell and then at Mulberry, destroying 43 homes and other buildings and damaging 93 others. A total of 45 families were affected. The storm then struck along Highway 50 in Moore County, destroying 23 homes and outbuildings and damaging 27 others, and affecting 20 families. At Beech Hill a church, school, store, and a dwelling were destroyed and at Marble Plains scattered spots were demolished. Several houses and two barns leveled at Roark Cove. At Dechard 15 homes destroyed and 50 damaged while some
Mulberry, Tenn.	13	9:30 p.m.	300	**800	0	1	°160,000	°	do	

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

FEBRUARY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
										85 other buildings destroyed or damaged and about 75 families affected. Five freight cars of the N. C. & St. L. Railroad were scattered along right of way. In Monteagle and Tracy City area approximately 150 homes and other buildings damaged.
Benton County, Tenn.	13	10 p.m.	300	**500	0	0	°\$20,000		° Tornado	A small tornado damaged 9 homes and 6 other buildings and affected 9 families.
Moore County, Tenn.	13	10 p.m.	1,000	2	0	9	°125,000		° do	Same storm as for Lincoln County and Mulberry, Tenn.
Beech Hill, Franklin County, Tenn.	13	10:15 p.m.	500	**800	0	0	°50,000		° do	Same storm as for Lincoln County and Mulberry, Tenn.
Dechard, Tenn.	13	10:30 p.m.	300	**850	3	35	°260,000		° do	Same storm as for Lincoln County and Mulberry, Tenn.
Cullman County, Ala.	13	10:30 p.m.				3	25,000		do	Four homes destroyed, 48 damaged; 16 buildings destroyed, 2 damaged.
Fayette County, Ala.	13	10:30 p.m.				7	10,000		Wind	Four homes destroyed, 8 damaged; 7 buildings destroyed, 9 damaged.
Jefferson County, Ala.	13	10:30 p.m.	200	$\frac{1}{2}$	1	26	165,000		Tornado	Nine homes destroyed, 55 damaged; 17 buildings destroyed, 54 damaged.
Marshall County, Ala.	13	9 p.m.				1	15,000		Wind	Four homes destroyed, 7 damaged; 17 buildings destroyed, 8 damaged.
Tuscaloosa County, Ala.	13	10:30 p.m.			1	7	7,500		do	Two homes destroyed, 7 damaged; 2 buildings destroyed, 8 damaged.
Hancock County, Miss.	13	10:30 p.m.			0	2	12,000	\$ 0	Tornado	Details lacking.
Monroe County, Miss.	13	10:30 p.m.			0	1	20,000	0	do	Details lacking.
Blount County, Ala.	13	10:45 p.m.				3	15,000		do	Three homes destroyed, 7 damaged; 9 buildings destroyed, 4 damaged.
Monteagle, Grundy County, Tenn.	13	11 p.m.	400	**1,000	0	1	°110,000		° do	Same storm as for Lincoln County, Mulberry, Franklin and Moore Counties, and Dechard, Tenn.
Tracy City, Tenn.	13	11:15 p.m.	400	**800	0	1	°90,000		° do	Same storm as for Lincoln County, Mulberry, Franklin and Moore Counties, and Dechard, Tenn.
Massachusetts, Rhode Island, and Connecticut	14-15	All day					2,500		Northwest gales	The 2 or 3 days of strong, dry, northwest winds with sunshine, created fire hazard, unusual at this season. A fire at Plainville, Mass., burned over 25 acres; one in Mystic, Conn., over 50 acres. Massachusetts State Forest authorities ordered out of winter storage radio equipment, and opened fire towers in Barnstable and Plymouth Counties.
Indianapolis and vicinity, Ind.	14-15						1,000		Ice (glaze)	Wires downed, also some telephone poles in rural areas.
Opheim, Mont.	16	Night			3				Blizzard	Car stalled and three persons continued journey in a horse-drawn sled; storm so severe they lost their way and perished from cold and exposure.
Pennsylvania, south-central counties	16-17				1	14	Several hundred		Rain, snow, and ice	Week-end rain and snow which iced highways was blamed for a series of highway accidents in which one person was killed and at least 14 injured in or near Harrisburg, Carlisle, Chambersburg and Lewistown.
Massachusetts	17-18	3 a.m., 17th-4 p.m., 18th			27	2	See remarks		Northeast gales and snow	Extremely heavy seas off the southeast coast split two tankers: one the "Pendleton" just off Chatham, the other the "Fort Mercer" about 32 miles east. All but 15 of over 70 crew members of the two vessels were taken off in Coast Guard rescue operations that recorded a new epic of heroic seamanship. In Massachusetts about seven others lost their lives during the storm, mostly by overexertion in combatting the elements. On land, minor local damage done to power and light installations; many traffic accidents. Damage to the two vessels might run into \$2,000,000, but cannot be estimated as one at least, will be re-united and restored to service, and a large part of their valuable cargo salvaged.
Maine, central and southern counties	17-18	(36 hours)			5		100,000		Gales and snow	This storm added about 2 to 2½ feet of new snow to the deep cover over most of State; on morning of 19th depths ranged from 22 inches in the Portland area to 51 inches at Caribou. Traffic paralyzed state-wide; more than 1,500 travelers marooned,

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

FEBRUARY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
New Hamp- shire, en- tire state	17-18	(30 hours)			3		Minor		Snow	as 62-mile gale piled up 10 to 12-foot drifts. Two lobstermen drowned when their boat was swamped, returning from Monhegan Island. Other deaths were from storm-caused accidents or overexertion.
Connecticut, all inter- ior parts of state	17-18	(30 hours)			6		Minor		do	Deaths reported from overexertion or exposure.
South Dakota	19	Entire day					See remarks		do	Snowstorm starting on 18th in northwestern North Dakota increased in intensity as it moved across South Dakota and became blizzard conditions by the 19th, except temperatures not extremely low. The southwest and extreme south not hit with snowfall or wind in comparison with rest of the State. Air-lift again called in action by 20th in Pierre area. A 29-inch depth of snow was accumulated at Pierre, with the additional fall of 17 inches during the storm. In the northeast, Aberdeen received 18 inches of snow which brought a snow depth of 23 inches. Sioux Falls was free of snow on ground at the time, but received 17 inches of new snow. Wind reached 30 to 40 m.p.h. and drifting snow closed all roads, but following 2 days favorable for road clearing operations. No severe losses reported from this storm.
Iowa, north- ern and central portions	19	All day	*100	250			\$125,000		Ice (glaze)	Telephone and power lines downed over wide area.
South Caddo Parish, La.	19	9 p.m.	200	2	0	5	15,000	\$ 0	Tornado	Occurred at junction of Flournoy-Lucas road and road to Reisor $\frac{1}{2}$ mile east of Buncombe. Two homes destroyed, three damaged, and three outbuildings damaged. Moved northeastward.
Millville (near Pana- ma City), Fla.	20	10:10 a.m.	75	1 $\frac{1}{2}$	0	4	10,000	0	do	One home destroyed, 12 others damaged, and 6 other buildings damaged. Storm moved northeastward, and path indicated some "skipping" action.
West Palm Beach, Fla.	26	11:18 a.m.			0	0	0	0	Water- spout	Funnel cloud over water observed from West Palm Beach Airport, and there is doubt as to whether the "funnel" ever reached to the water surface.
West Palm Beach, Fla.	26	11:20- 11:40 a.m.	15	1 $\frac{1}{2}$	0	0	1,100	500	Tornado	Funnel cloud observed to the south-southwest of West Palm Beach Airport, moving northeastward. It reached the ground about 3 $\frac{1}{2}$ miles west of Hypoluxo in a sparsely settled area, and before reaching town of Lantana the storm lifted above ground and moved out to sea. Damaged ferns, fernery roof, windows, and an automobile that was tumbled about 75 feet.
Plymouth, Bristol, Barnstable, Dukes, and Nantucket Counties, Mass., Rhode Is- land, and eastern Maine	27	Noon- midnight			13		600,000			Brunt of storm, heavy gales, and snow, was borne by Nantucket, where 23 inches of snow fell. Martha's Vineyard and Cape Cod, 15- to 20-inch cover. Transportation and communications were light, and power completely out; 3,000 autoists stranded on lower Cape Cod. The 120-foot Loran tower at Sankaty Head toppled as wind reached 80 m.p.h. in gusts. Nine deaths occurred in Massachusetts, 2 in Maine, and 2 in Rhode Island.
Valley View, Cooke Coun- ty, Tex.	29	2:10 a.m.					1,000		Wind and hail	Principal damage to roofs of buildings. Storm accompanied by light hail (pea size).
Belfast, Marshall County, Tenn.	29	4 p.m.	100	**200	1	0	*10,000		Tornado	Small tornado destroyed a few buildings.
Fayette- ville, Lin- coln Coun- ty, Tenn.	29	4:30 p.m.	300	2	2	150	*3,000,000		do	The most severe of a series of tornadoes raked the town of Fayetteville from southwest to northeast, demolishing 244 homes and other buildings, damaging 360 others, and uprooting hundreds of huge shade trees. Several business houses destroyed and power and communications lines damaged over a large area.
DeKalb Coun- ty, Ala.	29	5 p.m.		1/4		12	150,000		do	Twelve homes destroyed, 20 damaged; 25 buildings destroyed, 35 damaged.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

FEBRUARY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Chattanooga, Tenn.	29	6-9 p.m.	1,000	15			°\$11,500		° Squall	A squall line, accompanied by strong winds, passed over Chattanooga, toppling sign boards, radio and TV aerials, breaking plate glass windows along Market and Broad Streets, and breaking telephone and power lines. The squall line moved rapidly eastward passing over Lovell Field at 8:17 p.m. and capsizing several small aircraft. Maximum wind was 60 m.p.h. with an extreme speed of 63 m.p.h.
Cleveland, Bradley County, Tenn.	29	6:30-6:55 p.m.							Wind, and hail	Windstorm moved from southwest to northeast, with damage confined to blown-down sign boards and forest land. Hailstones approximately 3/4 inch in diameter.
McMinn County, Tenn.	29	6:30-7:30 p.m.	1,760	15	0	0	95,000	\$5,000	Tornado, and hail	A small tornado, accompanied by hail, moved eastward across the county, cutting a path of destruction through the Eastanallee Valley and community and apparently dying out near Etowah Highway. Many homes, barns, stores, and a church destroyed or damaged. Many cattle and horses killed. Damage to crops confined to hay stored in barns that were destroyed.
Viola, Warren County, Tenn.	29	7:30 p.m.	400	1	0	0	°10,000		° Tornado	The storm practically spent itself over Fayetteville, but at the community of Viola, some 50 miles to the northeast in Warren County, it struck again to damage several farm buildings.
Franklin County, Ga.	29	8 p.m.	50- 100	10	0	0	50,000	10,000	do	Storm moved eastward, mostly through rural sections, starting in the Strange district. Three or more homes and numerous smaller buildings destroyed, with moderate to heavy damages to several other homes and many smaller buildings. Many trees and utility lines blown down, and a substantial number of poultry lost.
Banks County, Ga.	29	8:30 p.m.	200- 400	10	0	3	80,000	Little	do	Storm moved eastward, mostly through rural sections, from Hickory Flat to Nails Creek, destroying 10 or more homes, a school, and numerous chicken houses and barns, with moderate to heavy damages to 25 or more homes and many smaller buildings. Many trees and utility lines blown down, and a large number of poultry lost.
Monteagle, Grundy County, Tenn.	29	9 p.m.	100	2			°1,000		° Wind, and hail	Buildings unroofed and signs blown down within a 1/2 mile area in town of Monteagle. Damage light outside this small area.
Jackson County, Ga.	29				0	5	25,000 or more		Tornado	Information incomplete and location uncertain. Newspaper report indicates one dwelling destroyed, injuring five occupants; two dwellings, a tenant house, and two barns unroofed; a large chicken house destroyed, causing loss of more than 8,000 chicks. Nature of storm believed to be tornadic.

• Miles instead of yards.

•• Yards instead of miles.

° Crop damage included with other property damage.



# SEVERE STORMS

Table 4—Continued

FEBRUARY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
LATE STORM REPORT FOR JANUARY 1952										
Snowflake-Taylor area, Ariz.	Jan. 18	All day					\$61,500		Rains	Heavy rains fell during day on soil that was already saturated by earlier storms. Some snow left at intermediate levels was melted also by warm rains which added to high runoff in all canyons and usually dry washes. Several dwellings affected by flood waters at Taylor. Apache Railroad sustained considerable damage; approximately 750 acres inundated; heavy loss to fences; some stored hay damaged; county roads badly eroded; some gullies require filling.
CORRECTION FOR OCTOBER 1951										
Alaska, southeast- ern portion	7	7 a.m.- midnight					change 10,000 to 55,000		Wind	Change last sentence to read: "Within 10-mile radius of Juneau damage to property \$5,000; within 20-mile radius of Ketchikan property damage \$50,000".



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

## FEBRUARY 1952

Flooding during February was mostly minor with no major or significant overflows reported. Mild weather caused the ice on the Missouri River to break up 3 to 4 weeks earlier than normal as far upstream as Sioux City, Iowa.

**ST. LAWRENCE DRAINAGE.**—Light overflows occurred in the Lake Erie drainage during the first decade of the month. No damage was reported.

**ATLANTIC SLOPE DRAINAGE.**—Minor flooding occurred along the James River at Columbia and Richmond, Va., between the 4th and 5th due to heavy rains on the 3d. The precipitation was particularly heavy in the Blue Ridge section where 2.3 to 3.6 inches of rainfall was reported in the area from upper Catawba Creek to the upper portions of South and Mechum rivers. The amounts decreased rather sharply above and below this region to about 1 inch in the Jackson Basin to less than 1 inch at and below Columbia. No damages were reported.

Light overflows resulted along the Roanoke, Neuse and Cape Fear rivers in eastern North Carolina during the first decade of the month due to the heavy rain from the 2d to the 4th. River levels were in the process of subsiding from the flood stages produced by the general rains of January 27-28 when these heavy rains occurred. The precipitation during this storm averaged from  $3/4$  to  $1\frac{1}{2}$  inches. Another storm between the 25th and 27th caused additional flooding on the Neuse River at Smithfield, N. C., and on the Cape Fear River at Elizabethtown, N. C.

Minor flooding occurred on the Pee Dee River at Cheraw and Peedee, S. C., between the 5th and 11th, necessitating the removal of livestock from the Cheraw-Marion area and the suspension of lumber operations in the Snow's Island area near the confluence of the Pee Dee and the Lynches rivers.

Moderately heavy rain on the 3d and 4th caused light flooding on the Broad River at Blairs, S. C. Some grain and pastures in the lowlands were slightly flooded but no damages were reported.

Minor flooding occurred on the Altamaha River at Charlotte, Ga., from the 23d through the end of the month due to the rains between the 14th and 16th, and the 21st and 27th. No damages resulted.

**EAST GULF OF MEXICO DRAINAGE.**—Light flooding occurred on the Apalachicola River at Blountstown, Fla., between the 18th and 26th and again on the 29th which continued into March. The rain ranged from less than 1 inch to more than 2.5 inches in the lower portion from the 14th to the 16th. Daily light rains occurred during the period from the 21st through the 27th. No damages resulted.

Moderate rains on the 27th and 28th caused minor flooding on the lower reaches of the Tombigbee River. The crest at Lock 3, Whitfield, Ala., was 8 feet above flood stage but no damage resulted as no planting had been done.

**UPPER MISSISSIPPI BASIN.**—Minor flooding occurred on the Meramec River at Pacific, Mo., on the 4th due to heavy rains (1.5 inches) during the 72-hour period ending on the 4th. No damage resulted from the slight overflow.

**MISSOURI BASIN.**—Temperatures in the fifties from the 8th through the 14th over the Elkhorn Valley in Nebraska caused the ice to break up in the Elkhorn River and its tributaries. Ice jams formed in the area just below Beemer, Nebr., on the Elkhorn and caused a series of minor floods downstream to about 4 miles below the town of West Point. Most of the flooding occurred on

the 14th when flood stage was reached at West Point, the highest gage reading observed was 13.76 feet on the West Point gage (flood stage, 12 feet). Two dwellings in the western section of West Point and about 1,200 acres of land near the river were flooded.

Frequent snows occurred during February in the Missouri Basin above Sioux City, Iowa. The snow was mostly light from the vicinity of Sioux City westward over a 60-mile strip of southern South Dakota and in the Black Hills section. Mild weather kept the snow melted most of the time in these sections. Elsewhere in South Dakota, the snowfall was much heavier, there was little thawing, and the snow accumulated through the month. Some of the heaviest snow cover extended from southwestern Minnesota over to Pierre and Mobridge, S. Dak., thence northwestward into western North Dakota. Snow depth in these areas generally varied from 10 to 20 inches of packed snow with high water content.

Mild weather during February in the eastern part of the Great Plains, and as far north as Sioux City, Iowa, caused an early ice breakup on the Missouri River. During February, the ice breakup gradually progressed upstream, reaching Sioux City on the 22d, which is 3 to 4 weeks earlier than the average time of breakup at this point. By the end of the month, the breakup was complete to the vicinity of Vermillion, S. Dak. The ice breakup was complete on the Floyd and Niobrara rivers and partial in the upper reaches of the Cheyenne, the Belle Fourche and the White rivers. The James River remained frozen and the Vermillion and Big Sioux rivers were frozen, except for a few miles of breakup near the mouth. The weather turned colder during the first week of March, stopping the breakup on the Missouri, and causing new ice to form on the smaller streams.

The Floyd River was above flood stage (16 feet) at James, Iowa, from the 11th to the 16th. The ice breakup occurred on the 12th and 13th. The ice jams along the Floyd were of little consequence and very little damage resulted.

The flooding which occurred on the Lamine River at Clifton City, Mo., on the 5th was due to moderate to heavy rains in the area south of the Missouri River and west of Columbia, Mo. The river receded very rapidly and the damage was negligible.

**OHIO BASIN.**—Daily rains during the first week of February totalling about 2 inches caused streams in the middle and lower Green River in Kentucky and in the upper Wabash Basin in Indiana to rise to above flood stage and added somewhat to the already moderately high stages occurring along the lower portion of both the White and Wabash rivers. Although stages at most points were a little less than moderately high and much bottom land overflowed, actual losses are believed to have been insignificant because of the season of the year. A good many secondary roads were closed temporarily, necessitating rerouting of traffic.

Due to rains which occurred late in January, high discharges were maintained on the Tennessee River at Kentucky Dam from the 1st to the 22d. The river at Gilbertsville, Ky., remained above the 31-foot flood stage during this period with a crest of 42.62 feet on the 8th. No damages resulted from this high water.

The Ohio River was above flood stage in the reach below Dam 25 (Addison, Ohio) on the first of February. Flood crests were reached at Ports-



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS—Continued

FEBRUARY 1952

mouth, Ohio, and Maysville, Ky., on the last day of January. On the first of February, the river was stationary at Dam 34 (Chilo, Ohio) and rising below. The river crested at Cincinnati, Ohio, on the first at a stage of 57.0 feet (flood stage, 52 feet), and at Cairo, Ill., on the 8th at a stage of 47.7 feet (flood stage, 40 feet). It receded to within bankfull stage at Cairo on the 21st.

**WHITE BASIN.**—Light flooding occurred along the lower White River at St. Charles, Ark., on the 1st and 2d, and on the Black River at Black Rock, Ark., from the 4th to the 8th. This flooding was due to general moderate rains during the first 3 days which averaged near 2 inches. Only negligible damage was reported.

**LOWER MISSISSIPPI AND ATCHAFALAYA BASINS.**—The Tallahatchie River at Swan Lake, Miss., continued to rise until February 8 due to heavy rains in January. It receded to within its banks on the 21st.

Light flooding occurred along the main stem of the Mississippi River at Caruthersville, Mo., between the 4th and 20th, due to heavy flow from the Ohio Basin.

Some flooding occurred on the Atchafalaya River at Morgan City, La., for 4 hours and 30 minutes during the evening of the 22d due to onshore winds

and high tides. No damages resulted from the overflow.

**PACIFIC SLOPE DRAINAGE.**—Overflow occurred at Colusa and Tisdale Weirs in California into Sutter Bypass and at Fremont Weir into Yolo Bypass most of the month. Releases from Shasta Reservoir were effective in maintaining a high flow in the Sacramento River between storms.

Heavy rainfall (4 to 6 inches) during the 24-hour period on January 31 and February 1 caused the Eel River to rise rapidly during the afternoon of the 1st to a stage of 22.5 feet, 5 feet above flood stage, at Fernbridge, Calif., on the 2d. Only minor damage was reported.

Melting snow and moderate precipitation on January 31 and the first two days of February caused some flooding in the Columbia Basin along the Willamette, Santiam, Tualatin and Yamhill rivers during the 1st decade of the month. Crest stages at Harrisburg, Jefferson and Oregon City, Oreg., were slightly higher than those occurring in December. Likewise, the main stem of the Willamette and most other streams were higher than in previous freshets this winter. All rivers, however, were below flood or bankfull stage except the ones indicated. There was no known damage except that due to erosion.



# FLOOD STAGE DATA

(All dates in February unless otherwise specified)

FEBRUARY 1952

Table 5

River and station	Flood stage	Above flood stages -dates		Crest*	
		From-	To-	Stage	Date
ST. LAWRENCE DRAINAGE					
St. Marys: Decatur, Ind.	13	1	7	14.9	4,5
St. Joseph: Montpelier, Ohio	10	5	6	10.6	5
Maumee: Fort Wayne, Ind.	15	5	5	15.2	5
ATLANTIC SLOPE DRAINAGE					
James:					
Columbia, Va.	18	4	5	20.4	4-5
Richmond, Va.	8	5	5	8.4	5
Roanoke:					
Randolph, Va.	21	3	6	22.3	5
Weldon, N. C.	31	6	9	32.2	8
Scotland Neck, N. C.	28	6	10	29.2	9
Williamston, N. C.	10	Jan. 31	19	11.3 11.4	5 8
Neuse:					
Neuse, N. C.	11	6	6	14.0	6
Smithfield, N. C.	13	6 28	8 Mar. 2	13.2 13.2	7 Mar. 1
Cape Fear: Lock No. 2, Elizabeth- town, N. C.	20	4 28	8 Mar. 2	25.3 20.5	6 Mar. 1
Pee Dee:					
Cheraw, S. C.	30	5	6	30.1	5
Peedee, S. C.	19	7	11	20.5	9
Broad: Blairs, S. C.	14	4	6	18.0	5
Altamaha: Charlotte, Ga.	12	23	29	12.7	28,29
EAST GULF OF MEXICO DRAINAGE					
Apalachicola: Blountstown, Fla.	15	18 29	26 **	15.9	21 --
Tombigbee:					
Lock No. 4, Demopolis, Ala.	39	1	2	39.4	2
Lock No. 3, Ala.	33	Jan. 26	10	41.2	2
Lock No. 1, Ala.	31	1	5	31.0	4-5
MISSISSIPPI SYSTEM Upper Mississippi Basin					
Meramec: Pacific, Mo.	11	1	1	11.7	4
Missouri Basin					
Floyd: James, Iowa	16	11	16	18.2	11
Elkhorn: West Point, Nebr.	12	14	14	13.8	14
Lamine: Clifton City, Mo.	15	5	5	21.0	5
Ohio Basin					
Green:					
Lock No. 4, Woodbury, Ky.	33	Jan. 29	1	36.0	Jan. 31
Lock No. 2, Rumsey, Ky.	34	Jan. 27	13	38.6	7
West Fork:					
Anderson, Ind.	10	1	5	10.9	4
Spencer, Ind.	14	4	8	16.8	6
Elliston, Ind.	18	Jan. 28	10	24.2	Jan. 30
Edwardsport, Ind.	12	Jan. 27	18	20.6	2
East Fork:					
Seymour, Ind.	11	Jan. 27 4	1 6	18.6 15.2	Jan. 28 4
Bedford, Ind.	20	7	9	20.7	7
White:					
Petersburg, Ind.	16	Jan. 29	11	23.3	4
Hazleton, Ind.	16		-	24.3	5
Wabash:					
Bluffton, Ind.	10	6	6	10.3	6
Wabash, Ind.	12	1	6	16.5	4
Lafayette, Ind.	11	4	12	17.8	6
Covington, Ind.	16	5	12	21.1	7
Montezuma, Ind.	11	Jan. 19	14	19.8 20.3	Jan. 28 9
Terre Haute, Ind.	11	Jan. 23	14	16.2 17.3	Jan. 30 3
Hutsonville, Ill.	20	2	13	21.2	4
Riverton, Ind.	18	3 11	7 13	18.5 18.2	5 12
Vincennes, Ind.	16	2	15	18.5	6,7
MISSISSIPPI SYSTEM (Cont.) Ohio Basin (Cont.)					
Wabash: (Cont.)					
Mt. Carmel, Ill.	17	Jan. 31	17	22.6	7
New Harmony, Ind.	15	3	17	18.1	8
Cumberland: Lock F, Eddyville, Ky.	50	Jan. 31 6	3 9	50.3 50.5	1 7
Tennessee: Gilbertsville, Ky.	31	Jan. 24	21	42.6	8
Ohio:					
Portsmouth, Ohio	50	Jan. 29	2	56.9	Jan. 31
Dam No. 33, Maysville, Ky.	50	Jan. 29	3	56.9	Jan. 31
Cincinnati, Ohio	52	Jan. 30	5	57.0	2
Dam No. 39, Markland, Ind.	48	Jan. 31	5	50.0	2
Madison, Ind.	46	Jan. 31	6	48.6	3
Dam No. 41, Louisville, Ky.	28	Jan. 31	7	33.0	4
Upper gage	55	Jan. 31	7	60.0	4
Lower gage	57	1	7	61.4	4
Dam No. 43, Evans Landing, Ind.	53	Jan. 30	10	61.3	4
Dam No. 45, Addison, Ky.	47	Jan. 31	10	53.0	4
Tell City, Ind.	38	Jan. 29	12	45.6	5
Dam No. 46, Owensboro, Ky.	41	1	10	44.1	5
Dam No. 47, Newburgh, Ind.	38	Jan. 27	15	46.0	5
Evansville, Ind.	42	3	11	43.7	5
Dam No. 48, Henderson, Ky.	38	Jan. 29	16	46.1	7
Mt. Vernon, Ind.	35	Jan. 29	17	44.1	8
Dam No. 49, Uniontown, Ky.	37	Jan. 30	18	46.4	9
Shawneetown, Ill.	33	Jan. 27	19	47.2	9
Dam No. 50, Fords Ferry, Ky.	34	Jan. 26	20	50.1	10
Dam No. 51, Golconda, Ill.	40	1	18	46.5	9
Paducah, Ky.	39	1	17	44.0	8
Dam No. 52, Brookport, Ill.	37	Jan. 28	19	45.8	8
Dam No. 53, Mound City, Ill.	42	Jan. 29	20	50.1	8
Cairo, Ill.	40	Jan. 29	21	47.7	8
White Basin					
Black: Black Rock, Ark.	14	4	8	14.5	5
White: St. Charles, Ark.	25	Dec. 8	2	26.8	Jan. 16
Lower Mississippi Basin					
Tallahatchie: Swan Lake, Miss.	26	Jan. 29	21	28.1	8
Mississippi:					
New Madrid, Mo.	34	1	19	37.4	9
Caruthersville, Mo.	32	1	20	35.9	11-12
Atchafalaya: Morgan City, La.	6	22	22	6.1	22
PACIFIC SLOPE DRAINAGE Sacramento Basin					
Sacramento:					
Colusa Weir	61.8	2	26	65.0	3
Tisdale Weir	45.5	Jan. 24	29	48.3 48.6	Jan. 26 4
Fremont Weir	33.8	Jan. 25	27	36.5	4
Eel Basin					
Eel: Fernbridge, Calif.	17.5	1	2	22.5	2
Columbia Basin					
Santiam: Jefferson, Oreg.	13	1	5	16.1	4
Sough Yamhill: Whiteson, Oreg.	33	2	5	39.3	2
Tualatin: Dilley, Oreg.	12	2	5	12.6	4
Willamette:					
Harrisburg, Oreg.	12	2	5	13.2 13.8	2 4
Oregon City, Oreg.	12	3	7	13.2	6
* Provisional. ** Continued at end of month.					

\* Provisional.  
\*\* Continued at end of month.



# RADIOSONDE DATA

Average monthly values

FEBRUARY 1952

Table 20

Standard pressure surface (mb.)	ALBUQUERQUE, N. MEX. ( 837 MB. )				ATLANTA, GA. ( 980 MB. )				BIG SPRING, TEX. ( 925 MB. )				BISMARCK, N. DAK. ( 955 MB. )				BOISE, IDAHO ( 918 MB. )				BROWNSVILLE, TEX. (1014 MB. )				BUFFALO, N. Y. ( 988 MB. )			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	29	1,620	4.9	36	29	*307	8.3	70	28	784	10.0	41	27	505	- 7.5	86	29	868	- 0.8	81	28	6	17.8	78	29	221	- 2.1	78
1,000	29	137			29	144			28	124			27	144			29	181			28	125	18.4	74	29	123		
950	29	568			29	574	9.0	61	28	559			27	551	- 7.2	82	29	601			28	570	16.8	67	29	533	- 3.4	70
900	29	1,019			29	1,016	7.2	64	28	1,011	11.8	34	27	972	- 3.6	70	29	1,031			28	1,025	15.3	53	29	956	- 5.6	69
850	29	1,490			29	1,485	5.3	60	28	1,486	9.6	30	27	1,424	- 3.9	63	29	1,487	- 1.5	62	28	1,508	13.5	42	29	1,404	- 6.5	61
800	29	1,984	3.4	32	29	1,979	3.4	50	28	1,986	6.3	28	27	1,901	- 5.7	56	29	1,968	- 3.4	59	28	2,016	11.3		29	1,876	- 8.0	55
750	29	2,513	- 6.3	37	29	2,507	1.3	45	28	2,513	2.7	28	27	2,410	- 8.5	57	29	2,482	- 5.8	56	28	2,558	8.5	31	29	2,378	- 10.0	54
700	29	3,052	- 4.5	42	29	3,053	- 1.9	42	28	3,065	- 1.0		27	2,936	- 11.3	54	29	3,014	- 9.1	51	28	3,119	5.0	32	29	2,905	- 12.6	53
650	29	3,635	- 8.5	47	29	3,646	- 5.3	33	28	3,653	- 5.2		27	3,510	- 14.9	54	29	3,589	- 12.4	48	28	3,722	- 8.3	35	29	3,474	- 15.8	53
600	29	4,247	- 12.8	47	29	4,263	- 9.3		28	4,275	- 9.6	31	27	4,102	- 18.6	53	29	4,191	- 16.0	47	28	4,357	- 3.6	32	29	4,066	- 19.1	52
550	29	4,907	- 17.3	42	29	4,934	- 13.9		28	4,943	- 14.5		27	4,750	- 22.7	50	29	4,846	- 20.4	43	28	5,038	- 8.3		29	4,710	- 23.0	49
500	29	5,612	- 22.3		29	5,646	- 19.0		28	5,656	- 19.7		27	5,438	- 27.6	47	29	5,539	- 25.1	44	28	5,772	- 13.2		29	5,401	- 27.6	47
450	29	6,379	- 27.7		29	6,428	- 24.3		28	6,428	- 24.3		27	6,195	- 33.3	44	29	6,299	- 30.6	42	28	6,573	- 18.3		28	6,151	- 32.8	44
400	29	7,215	- 33.9		28	7,270	- 30.0		28	7,273	- 31.6		26	7,002	- 39.4		29	7,122	- 36.4		27	7,434	- 24.4		26	6,970	- 38.4	
350	29	8,137	- 40.9		28	8,207	- 36.6		28	8,205	- 38.4		25	7,900	- 46.2		29	8,035	- 43.0		27	8,392	- 31.4		26	7,871	- 43.7	
300	29	9,171	- 47.1		28	9,259	- 43.6		28	9,249	- 45.4		22	8,912	- 52.2		28	9,070	- 49.8		26	9,471	- 39.1		25	8,895	- 48.5	
250	29	10,362	- 52.6		26	10,463	- 50.9		28	10,447	- 51.8		22	10,085	- 53.9		28	10,247	- 54.6		25	10,700	- 47.9		26	10,080	- 50.0	
200	29	11,790	- 55.7		20	11,883	- 55.4		27	11,877	- 55.5		20	11,527	- 50.8		28	11,667	- 55.4		21	12,141	- 57.0		22	11,548	- 48.2	
175	29	12,641	- 55.0		18	12,738	- 56.0		25	12,720	- 55.2		19	12,398	- 49.2		28	12,523	- 52.9		24	12,981	- 59.9		20	12,455	- 47.5	
150	29	13,624	- 58.8		13	13,712	- 58.0		24	13,696	- 58.8		19	13,408	- 49.3		28	13,519	- 52.1		23	13,931	- 63.1		20	13,441	- 48.6	
125	28	14,784	- 57.0		9	14,877	- 60.1		23	14,837	- 58.9		17	14,599	- 50.6		28	14,696	- 53.0		19	15,041	- 66.6		16	14,624	- 50.1	
100	27	16,180	- 59.7		9	16,258	- 62.7		22	16,224	- 61.9		16	16,054	- 52.1		27	16,132	- 53.9		16	16,379	- 68.9		13	16,061	- 52.1	
80	24	17,573	- 59.6		7	17,624	- 63.3		22	17,599	- 62.8		16	17,495	- 52.7		26	17,565	- 54.5		11	17,704	- 69.6		11	17,499	- 53.8	
60	21	19,362	- 59.4		5	19,406	- 62.5		20	19,375	- 61.1		15	19,345	- 52.3		24	19,411	- 54.5		10	19,427	- 66.4		11	19,343	- 54.1	
50	18	20,503	- 58.5		5	20,534	- 60.9		18	20,507	- 60.2		10	20,532	- 52.9		22	20,581	- 54.0		10	20,539	- 62.4		12	20,512	- 54.6	
40	15	21,909	- 57.1						16	21,903	- 58.5		6	21,997	- 53.0		22	22,012	- 53.8		6	21,946	- 59.6		10	21,944	- 54.3	
30	5	23,718	- 57.1						14	23,708	- 57.4						16	23,855	- 53.9						5	23,774	- 54.9	
20									7	26,291	- 55.4																	

Standard pressure surface (mb.)	BURRWOOD, LA. (1016 MB. )				*CAMAGUEY, CUBA (1003 MB. )				CARIBOU, ME. ( 988 MB. )				CHARLESTON, S. C. (1015 MB. )				COLUMBIA, MO. ( 987 MB. )				DOUGLE CITY, KANS. ( 923 MB. )				EL PASO, TEX. ( 881 MB. )			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	28	3	15.0	89	9	122	18.9		29	191	- 8.1	76	29	13	9.3	79	29	239	3.3	72	29	792	3.5	59	29	1,195	9.8	35
1,000	28	138	15.9	79	9	151	19.2		29	93	- 10.0		29	136	11.4	66	29	130			29	128			29	124		
950	28	580	13.8	75	9	601	18.1		29	497	- 7.7	73	29	573	11.0	58	29	551	3.8	61	29	553			29	564		
900	28	1,027	11.3	70	9	1,055	15.8		29	912	- 9.6	75	29	1,015	8.9	57	29	986	1.9	60	29	994	5.3	48	29	1,017		
850	29	1,502	9.6	53	9	1,539	13.1		29	1,352	- 11.0	72	29	1,487	7.0	53	29	1,445	- 4.4	56	29	1,460	3.5	45	29	1,494	10.3	27
800	29	2,004	7.6		9	2,047	10.7		29	1,817	- 11.7	65	29	1,983	4.8	49	29	1,929	- 1.9	50	29	1,949	1.0	44	29	1,994	6.7	28
750	29	2,539	4.9		9	2,596	9.8		29	2,317	- 13.0	62	29	2,515	1.9	45	29	2,446	- 4.1	43	29	2,468	1.9	41	29	2,524	2.8	32
700	29	3,093	1.9	35	9	3,155	6.9		29	2,834	- 15.2	58	29	3,061	- 1.0	40	29	2,982	- 1.9	41	29	3,010	- 5.2	40	29	3,074	- 1.3	35
650	28	3,689	- 2.0	39	9	3,770	4.4		29	3,399	- 17.5	55	29	3,657	- 4.2		29	3,563	- 10.1	39	29	3,590	- 9.0	40	29	3,667	- 4.9	34
600	27	4,317	- 6.2		7	4,412	1.4		29	3,987	- 20.5	52	29	4,275	- 8.2		29	4,169	- 13.9	36	29	4,202	- 13.0	39	29	4,283	- 9.5	31
550	27	4,993	- 10.6		7	5,107	- 2.0		28	4,627	- 24.4	50	29	4,950	- 12.7		28	4,832	- 18.4	36	29	4,862	- 17.6	39	29	4,957	- 13.6	
500	27	5,719	- 15.0		7	5,860	- 6.2		28	5,310	- 29.1	50	29	5,666	- 17.6	40	28	5,528	- 23.5		29	5,566	- 22.9	41	29	5,667	- 18.6	
450	27	6,510	- 20.2		6	6,683	- 12.1		28	6,059	- 34.3	49	29	6,452	- 23.1		28	6,295	- 29.4		28	6,327	- 28.9	44	29	6,446	- 24.5	
400	27	7,373	- 25.5		5	7,566	- 19.1		28	6,871	- 39.7		28	7,297	- 28.8		28	7,121	- 35.8		28	7,159	- 35.4	45	29	7,283	- 30.9	
350	27	8,327	- 32.7						27	7,778	- 45.4		28	8,239	- 35.6		28	8,035	- 43.1		27	8,079	- 42.1					



# RADIOSONDE DATA

Average monthly values

Table 20—Continued

FEBRUARY 1952

	HILO, T. H. (1015 MB.)				INTERNAT. FALLS, MINN. ( 972 MB.)				JOLIET, ILL. ( 994 MB.)				LAKE CHARLES, LA. (1016 MB.)				LANDER, WYO. ( 826 MB.)				LAS VEGAS, NEV. ( 940 MB.)				LITTLE ROCK, ARK. (1005 MB.)			
Standard pressure surface (mb.)	Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations			
	Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height			
	Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				Temperature			
	Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity			
SURFACE	29	9	22.8	75	29	361	- 8.2	76	29	179	- 0.8	79	28	5	13.8	85	29	1,696	- 3.6	58	29	660	9.0	34	29	79	9.6	70
1,000	29	141	21.8	77	29	137	- 2.6	77	29	133	- 2.6	77	28	136	14.3	77	29	152	- 3.6	58	29	141	- 1.1	34	29	124	10.0	63
950	29	586	18.2	81	29	540	- 7.7	71	29	544	- 1.4	70	28	573	12.3	72	29	576	- 3.6	58	29	573	- 3.6	31	29	554	9.5	61
900	29	1,046	14.9	84	29	957	- 8.3	69	29	973	- 2.5	59	28	1,020	10.3	66	29	1,012	- 2.0	52	29	1,023	10.8	23	29	998	7.3	61
850	29	1,528	11.8	84	29	1,400	- 9.1	64	29	1,425	- 3.7	57	28	1,495	8.5	48	29	1,467	- 3.6	47	29	1,496	7.2	27	29	1,466	5.1	60
800	29	2,034	10.4	64	29	1,868	-10.1	56	29	1,902	- 5.6	50	28	1,994	6.4	45	29	1,951	- 2.0	40	29	1,991	3.4	31	29	1,959	2.9	59
750	29	2,563	8.6	46	29	2,369	-12.5	50	29	2,410	- 7.8	49	28	2,525	3.8	38	29	2,467	- 3.8	47	29	2,513	- 6	35	29	2,487	- 7	53
700	29	3,138	6.2		29	2,887	-15.2	46	29	2,940	-10.5	48	28	3,078	- 5	40	29	3,004	- 7.5	48	29	3,058	- 3.9	32	29	3,031	- 2.4	50
650	29	3,748	3.3		29	3,455	-18.5	41	29	3,513	-13.4	43	26	3,672	- 2.9		29	3,582	-11.5	49	29	3,643	- 7.6	32	29	3,621	- 6.0	48
600	29	4,387	- 5		29	4,035	-22.1	44	29	4,112	-17.0	41	26	4,298	- 7.2		29	4,185	-15.7	49	29	4,257	-11.5	32	29	4,237	-10.3	45
550	29	5,077	- 5.1		28	4,675	-26.0	42	29	4,763	-21.4	44	26	4,972	-11.7		29	4,839	-20.3	45	29	4,922	-15.6		29	4,909	-14.7	43
500	29	5,819	-10.1		28	5,355	-30.4		29	5,455	-26.0	41	26	5,693	-16.8		29	5,534	-25.3	43	29	5,632	-20.5		29	5,616	-19.8	44
450	29	6,629	-15.9		28	6,097	-35.3		29	6,210	-31.3		26	6,477	-22.1		29	6,293	-31.1	42	29	6,408	-26.5		29	6,398	-25.3	42
400	29	7,500	-22.1		28	6,907	-40.8		29	7,034	-37.3		26	7,333	-27.1		29	7,115	-37.4		29	7,243	-32.8		29	7,234	-31.5	42
350	29	8,467	-29.4		28	7,802	-46.9		27	7,943	-44.0		26	8,279	-34.1		29	8,024	-43.9		29	8,168	-40.0		28	8,163	-38.5	
300	29	9,551	-37.2		28	8,801	-52.2		27	8,963	-50.4		26	9,341	-41.2		29	9,042	-50.5		29	9,205	-47.3		28	9,206	-45.2	
250	29	10,788	-45.3		26	9,978	-59.4		26	10,138	-53.7		26	10,556	-49.1		28	10,215	-55.0		29	10,390	-54.8		28	10,405	-51.7	
200	29	12,250	-54.2		24	11,424	-68.9		26	11,576	-65.3		25	12,000	-54.5		28	11,639	-62.0		29	11,805	-56.9		27	11,839	-54.2	
175	29	13,095	-59.2		23	12,300	-74.7		26	12,445	-70.7		21	12,840	-56.6		27	12,494	-52.0		28	12,656	-55.6		27	12,696	-54.0	
150	29	14,049	-64.2		21	13,315	-81.9		24	13,452	-80.8		18	13,801	-68.9		27	13,495	-61.4		28	13,635	-55.5		24	13,681	-54.7	
125	29	15,149	-69.3		20	14,515	-89.0		24	14,634	-82.9		17	14,939	-62.3		26	14,680	-52.3		27	14,784	-57.1		21	14,838	-56.6	
100	29	16,469	-74.0		18	15,983	-90.6		21	16,061	-84.8		13	16,313	-64.2		24	16,109	-54.0		26	16,188	-58.9		16	16,247	-58.9	
80	15	17,765	-74.6		17	17,432	-91.2		19	17,489	-85.2		10	17,664	-65.1		22	17,541	-54.6		25	17,578	-58.8		11	17,640	-59.5	
60	9	19,448	-68.4		16	19,302	-81.3		16	19,310	-85.1		8	19,422	-60.9		21	19,374	-54.9		24	19,382	-58.4		9	19,448	-58.7	
50	7	20,563	-65.1		14	20,497	-80.9		16	20,475	-84.5		8	21,560	-59.1		19	20,541	-54.9		25	20,549	-58.7		7	20,600	-56.2	
40	6	21,931	-61.8		8	21,972	-82.0		16	21,903	-83.9		7	21,979	-55.6		16	21,974	-54.0		21	21,938	-56.3					
30									13	23,759	-84.3		6	23,802	-56.2		11	23,814	-54.1			19	23,763	-55.3				
20									5	26,358	-85.3										13	26,341	-54.9					
15																					6	28,191	-53.9					

MAZATLAN, MEXICO (1010 MB.)				MEDFORD, ORE. ( 971 MB.)				MERIDA, MEXICO (1013 MB.)				MIAMI, FLA. (1017 MB.)				NANTUCKET, MASS. (1011 MB.)				NASHVILLE, TENN. ( 995 MB.)				NORTH PLATTE, NEBR. ( 915 MB.)				
Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				
Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				
Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				
Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				
SURFACE	27	14	21.8	75	29	401	5.2	85	29	27	23.7	63	29	4	18.5	76	28	14	0.1	78	29	177	7.1	71	29	849	- 0.7	76
1,000	27	103	21.3	70	29	156	- 6.0	73	29	137	23.1	63	29	151	18.9	67	28	103	- 2	66	29	134	5.2	58	29	132	- 552	
950	27	560	21.6	38	29	580	6.0	73	29	586	20.9	63	29	591	16.0	65	28	516	- 1.4	67	29	561	6.9	58	29	552	- 51.9	
900	27	1,014	19.7	34	29	1,020	- 4.9	63	29	1,049	- 1.9	63	29	1,047	13.1	61	28	1,014	- 3.8	65	29	1,000	- 4.8	57	29	985	- 1.9	63
850	27	1,504	16.7	34	29	1,484	- 2.1	62	29	1,537	14.9	60	29	1,526	11.7	46	28	1,391	- 4.9	54	29	1,465	3.0	56	29	1,446	- 6	53
800	26	2,016	13.4	30	29	1,970	- 1.0	61	29	2,048	12.2	59	29	2,032	10.4		28	1,867	- 6.1	51	29	1,954	- 6	52	29	1,931	- 1.4	47
750	26	2,567	9.9		29	2,483	- 4.1	55	29	2,598	11.0	39	29	2,572	8.0		28	2,371	- 8.6	52	29	2,474	- 2.0	47	29	2,446	- 4.0	47
700	26	3,125	6.3		29	3,023	- 7.3	53	29	3,161	8.5		29	3,133	4.7		28	2,901	-11.6	52	29	3,014	- 4.5	37	29	2,984	- 7.3	48
650	26	3,736	2.5		29	3,599	-11.0	54	29	3,780	5.9		29	3,731	1.5		28	3,474	-14.4	44	29	3,596	- 7.6	36	29	3,562	-10.9	49
600	26	4,370	- 1.6		29	4,207	-15.1	56	29	4,421	2.3		29	4,373	- 1.8		27	4,068	-17.2		29	4,214	-11.3	36	29	4,168	-14.8	46
550	26	5,084	- 6.1		29	4,863	-19.3	55	29	5,120	- 1.8		28	5,056	- 5.8		27	4,719	-21.2		28	4,876	-16.0	38	29	4,825	-19.2	46
500	26	5,796	-11.1		29	5,561	-24.0	55	28	5,869	- 6.6		28	5,798	-10.5		27	5,412	-25.6		28	5,586	-21.0	37	29	5,523	-24.4	46
450	26	6,610	-16.4		29	6,326	-29.4	52	28	6,693	-12.5		27	6,605	-15.7		27	6,172	-30.8		28	6,360	-26.7	42	29	6,279	-30.2	43
400	26	7,474	-22.3		29	7,152	-35.1	48	28	7,573	-19.4		27	7,481	-22.1		27	6,994	-36.5		28	7,196	-32.7	38	29	7,108	-36.7	41
350	25	8,440	-29.3		29	8,069	-41.8		28	8,549	-27.1		27	8,448	-29.6		27	7,907	-42.4		28	8,123	-39.3		29	8,018	-43.9	
300	24	9,523	-37.0		29	9,097	-49.0		28	9,640	-35.6		27	9,529	-37.6		26	8,933	-47.8		28	9,162	-46.2		28	9,041	-50.5	
250	18	10,779	-45.9		28	10,283	-55.1		28	10,882	-45.2		25	10,759	-47.1		24	10,134	-50.9		27	10,358	-52.3		28	10,215	-54.5	
200	7	12,235	-55.3		27	11,696	-67.1		25	12,337	-55.7		24	12,206	-56.1		23	11,579	-51.4		27	11,788	-54.6		28	11,642	-53.6	
175					26	12,542	-61.4		24	13,142	-61.4		22	13,043	-60.6		22	12,450	-54.4		26	12,647	-54.4		28	12,504	-51.4	
150					26	13,628	-63.7		18	14,133	-66.1		19	13,997	-64.5		21	13,456	-50.9		26	13,634	-54.7		26	13,503	-51.2	
125					25	14,705	-54.7		15	15,227	-70.0		14	15,101	-69.5		20	14,634	-53.1		26	14,795	-56.3		26	14,684	-52.4	
100					25	16,129	-55.3																					



# RADIOSONDE DATA

Average monthly values

Table 20-Continued

FEBRUARY 1952

Standard pressure surfaces (mb.)	ST. CLOUD, MINN. ( 978 MB.)				SAN ANTONIO, TEX. ( 987 MB.)				SAN JUAN, P. R. (1015 MB.)				SANTA MARIA, CALIF. (1011 MB.)				S. STE. MARIE, MICH. ( 988 MB.)				SPOKANE, WASH. ( 932 MB.)				SWAN ISLAND, W. I. (1014 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	29	317	- 6.4	81	29	240	14.5	55	29	19	23.2	82	29	71	11.0	75	28	221	- 6.9	79	29	722	- 1.2	80	29	10	24.6	78
1,000	29	136			29	131			29	147	22.9	79	29	166	11.8	68	28	126			29	157			29	130	24.0	78
950	29	547	- 5.0	76	29	569	15.4	51	29	594	20.3	78	29	599	10.3	60	28	530	- 6.4	70	29	577			29	583	20.9	78
900	29	965	- 4.8	66	29	1,024	12.4	53	29	1,058	17.1	77	29	1,043	8.2	53	28	949	- 8.1	66	29	1,005	- .2	67	29	1,044	17.9	78
850	29	1,415	- 5.3	56	29	1,501	10.1	49	29	1,544	14.0	76	29	1,512	5.8	44	28	1,391	- 9.8	62	29	1,461	- 2.5	65	29	1,531	15.0	72
800	29	1,889	- 6.8	53	29	2,002	7.7	46	29	2,055	12.2	64	29	2,005	3.0	41	28	1,857	-11.4	58	29	1,940	- 5.2	62	29	2,043	13.1	57
750	29	2,395	- 9.4	56	29	2,536	4.6	40	29	2,600	10.9	49	29	2,531	- .2	40	28	2,355	-13.0	51	29	2,451	- 7.9	57	29	2,595	11.3	47
700	29	2,921	-11.9	57	29	3,090	1.4	32	29	3,168	8.8	33	29	3,074	- 3.4	38	28	2,873	-15.4	48	29	2,977	-11.1	55	29	3,158	9.1	
650	29	3,493	-15.1	53	29	3,686	- 2.3		29	3,787	6.5		29	3,660	- 7.0	35	28	3,437	-18.5	45	29	3,548	-14.3	51	29	3,778	6.9	
600	29	4,086	-18.7	51	29	4,314	- 6.1		29	4,431	3.1		29	4,275	-11.4	38	27	4,017	-22.3	45	29	4,145	-18.1	49	29	4,422	3.6	
550	29	4,729	-22.8	49	29	4,991	-10.8		29	5,131	- .8		29	4,941	-15.7	35	27	4,654	-26.0	42	29	4,794	-22.5	53	29	5,121	- .4	
500	29	5,422	-27.5	46	29	5,714	-16.0		29	5,884	- 6.0		29	5,649	-20.8	37	27	5,336	-30.4		29	5,482	-27.2	52	29	5,877	- 5.5	
450	29	6,172	-33.2	44	29	6,502	-21.8		29	6,709	-11.7		29	6,422	-26.6	39	26	6,083	-35.6		29	6,237	-32.7	51	29	6,698	-11.5	
400	29	6,989	-39.3		29	7,356	-27.9		29	7,591	-18.5		29	7,258	-33.1	40	24	6,885	-41.5		29	7,052	-38.6		29	7,586	-18.7	
350	29	7,891	-45.5		29	8,302	-34.3		29	8,572	-26.0		29	8,182	-40.3		24	7,779	-47.0		29	7,958	-44.2		29	8,567	-26.1	
300	29	8,905	-51.4		28	9,373	-41.7		29	9,671	-34.0		29	9,216	-48.0		24	8,791	-50.1		29	8,978	-49.6		29	9,662	-34.4	
250	28	10,080	-58.4		27	10,589	-49.5		29	10,925	-43.0		29	10,396	-55.7		24	9,978	-49.9		29	10,160	-53.3		29	10,910	-43.6	
200	27	11,526	-49.8		27	12,028	-55.4		29	12,393	-54.2		29	11,805	-57.2		24	11,447	-47.3		29	11,594	-52.6		29	12,375	-54.3	
175	26	12,402	-48.8		27	12,877	-56.9		29	13,237	-60.3		29	12,651	-56.0		24	12,330	-47.3		29	12,460	-50.4		29	13,218	-60.3	
150	24	13,402	-49.3		25	13,848	-58.9		28	14,184	-66.1		28	13,628	-56.5		24	13,346	-48.3		28	13,463	-49.4		29	14,165	-65.7	
125	23	14,594	-50.1		18	14,967	-61.1		29	15,275	-71.4		28	14,778	-58.5		24	14,542	-49.6		26	14,653	-50.4		28	15,258	-70.9	
100	23	16,047	-51.3		17	16,364	-65.0		28	16,576	-76.4		27	16,170	-60.4		23	16,002	-50.8		24	16,107	-51.0		26	16,560	-75.9	
80	19	17,496	-52.1		15	17,687	-64.4		26	17,855	-78.7		24	17,562	-60.7		23	17,450	-52.0		23	17,554	-50.9		15	17,837	-78.2	
60	15	19,358	-51.9		12	19,454	-63.5		23	19,517	-71.8		21	19,356	-59.8		22	19,314	-51.6		21	19,435	-51.1		11	19,489	-72.5	
50	10	20,569	-50.9		7	20,592	-58.9		22	20,608	-65.3		18	20,506	-58.2		21	20,497	-51.3		19	20,627	-51.3		9	20,574	-65.4	
40	8	22,014	-51.0		6	21,994	-57.6		20	21,977	-61.7		16	21,914	-56.7		13	21,913	-52.2		13	22,074	-51.2		8	21,949	-62.9	
30									19	23,772	-57.9		10	23,737	-55.1		6	23,740	-53.0		7	23,930	-51.0		6	23,712	-59.2	
20									14	26,355	-53.2																	
15									5	28,210	-52.1																	

Standard pressure surfaces (mb.)	TACUBAYA, MEXICO ( 772 MB.)				TAMPA, FLA. (1017 MB.)				TATOOSH ISLAND, WASH. (1012 MB.)				VERACRUZ, MEXICO (1010 MB.)				WASHINGTON, D. C. (1005 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	16	2,306	16.9	38	29	9	15.4	82	29	31	5.8	83	20	12	22.9	83	29	88	3.6	60
1,000	16	33			29	149	16.4	74	29	124	5.2	82	20	99	22.3	82	29	129	3.2	53
950	16	503			29	589	14.5	69	29	543	2.3	82	20	548	21.1	76	29	549	3.2	55
900	16	980			29	1,040	12.3	60	29	976	- .5	82	20	1,014	19.5	67	29	982	1.1	56
850	16	1,472			29	1,518	10.6	43	29	1,431	- 3.0	76	20	1,504	17.2	58	29	1,440	- .6	55
800	16	2,005			29	2,021	8.9	36	29	1,909	-5.6	72	20	2,020	15.4	51	29	1,923	- 3.0	60
750	16	2,557	16.1	34	29	2,565	6.7	39	29	2,418	- 7.9	61	20	2,572	13.3	45	29	2,438	- 5.5	59
700	16	3,134	11.8		29	3,116	3.4	39	29	2,945	-11.1	57	19	3,142	10.1	44	29	2,970	- 8.2	55
650	16	3,753	7.1		28	3,724		40	29	3,518	-14.4	56	19	3,759	6.7	47	29	3,547	-11.0	52
600	16	4,402	2.0		28	4,353	- 3.8	42	29	4,113	-18.0	55	18	4,409	2.5	46	29	4,153	-14.7	43
550	16	5,101	- 3.0		28	5,040	- 7.7		29	4,758	-22.2	51	17	5,107	- 2.2		29	4,808	-18.6	37
500	15	5,844	- 7.9		28	5,770	-12.2		28	5,448	-27.3	50	17	5,858	- 7.0		29	5,510	-23.3	
450	15	6,663	-13.8		28	6,580	-17.3		28	6,198	-32.6	48	17	6,679	-12.1		29	6,279	-28.8	
400	16	7,543	-19.9		28	7,441	-23.3		27	7,011	-38.5		17	7,564	-18.9		29	7,106	-34.9	
350	14	8,522	-27.4		28	8,404	-30.4	40	26	7,925	-44.5		17	8,544	-26.7		29	8,024	-41.2	
300	10	9,610	-36.1		28	9,482	-38.4		26	8,943	-50.4		14	9,637	-35.2		29	9,055	-47.5	
250	9	10,852	-45.7		28	10,709	-47.5		24	10,121	-54.5		12	10,882	-44.9		29	10,244	-52.6	
200					27	12,155	-56.1		23	11,549	-52.4		9	12,324	-55.4		28	11,676	-52.2	
175					26	12,997	-59.0		22	12,411	-51.0		7	13,161	-61.0		27	12,536	-51.5	
150					25	13,958	-61.7		20	13,410	-50.3		5	14,116	-65.7		27	13,535	-52.1	
125					22	15,074	-64.9		20	14,596	-50.7						25	14,702	-53.7	
100					20	16,425	-68.1		19	16,053	-51.5						25	16,125	-56.1	
80					15	17,758	-69.5		16	17,514	-51.3						24	17,539	-56.5	
60					10	19,463	-66.7		12	19,394	-50.7						22	19,357	-56.6	
50					9	20,572	-63.8		10	20,602	-50.4						20	20,510	-55.7	
40					9	21,951	-60.5										16	21,914	-55.9	
30					8	23,748	-58.6										13	23,735	-55.9	
20																	7	26,355	-54.1	

Note: All observations scheduled at 0300, G.C.T. except at Mazatlan, Merida and Veracruz, where they are taken near 0200, G.C.T.. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and

expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C. have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value



# PILOT BALLOON DATA

Average monthly resultant winds

FEBRUARY 1952

Table 21

Altitude (meters) m.a.s.l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N.Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S.C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)			Ely, Nev. (1,910 m.)		
	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations		
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed	
Surface-----	25	296	2.9	29	283	3.0	29	283	2.4	26	325	1.2	27	310	0.6	29	142	2.0	25	262	2.5	28	293	1.4	24	255	3.2	23	283	1.7	29	271	3.1	28	189	2.3
500-----	25	280	3.7	29	283	3.0	29	283	2.4	26	325	1.2	27	310	0.6	29	165	1.6	25	243	3.5	28	285	2.9	23	255	6.3	23	271	2.3	29	259	3.2	28	200	1.9
1,000-----	25	280	3.7	29	283	3.0	29	283	2.4	26	325	1.2	27	310	0.6	29	165	1.6	25	243	3.5	28	285	2.9	23	255	6.3	23	271	2.3	29	259	3.2	28	200	1.9
1,500-----	25	265	5.7	29	283	3.0	29	283	2.4	26	325	1.2	27	310	0.6	29	165	1.6	25	243	3.5	28	285	2.9	23	255	6.3	23	271	2.3	29	259	3.2	28	200	1.9
2,000-----	23	275	8.9	29	277	4.3	26	275	9.8	19	299	8.7	26	246	3.6	16	303	7.9	13	287	7.5	16	299	9.9	19	272	13.7	13	293	10.1	29	258	5.9	28	269	2.6
2,500-----	23	271	11.0	27	281	6.0	24	283	9.6	18	301	10.0	22	259	4.5	13	308	10.3				16	300	11.4	16	277	15.7	11	293	12.9	28	266	6.6	28	269	2.6
3,000-----	23	276	11.5	25	287	7.2	23	294	9.6	16	307	11.9	18	261	5.2	13	290	12.4				15	293	13.8	14	273	16.0	10	284	14.1	28	274	9.0	27	272	4.0
4,000-----	23	268	12.3	19	291	11.3	18	295	11.5	15	308	14.2	13	289	8.2	12	286	16.5				13	285	15.3	10	276	18.5				23	280	11.8	24	281	7.2
5,000-----	18	292	16.0	18	287	14.9	14	296	13.1	14	308	17.0	12	304	10.7							12	272	18.9							20	281	15.2	19	283	9.3
6,000-----	15	292	17.3	17	285	17.5	12	305	14.6	12	309	17.2	11	300	11.7																18	283	16.5	15	300	9.4
8,000-----	11	225	21.8																												14	280	23.8	13	310	12.4
	Grand Junction, Colo. (1,475 m.)			Greensboro, N.C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)		
	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations		
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed	
Surface-----	28	309	1.8	24	266	2.9	28	254	2.8	25	260	1.5	27	325	1.8	26	274	1.3	27	333	1.2	28	175	1.6	29	239	1.5	28	263	1.7	27	256	1.5	26	308	2.4
500-----	24	309	1.8	24	266	2.9	28	254	2.8	25	260	1.5	27	325	1.8	26	274	1.3	27	333	1.2	28	175	1.6	29	239	1.5	28	263	1.7	27	256	1.5	26	308	2.4
1,000-----	24	309	1.8	24	266	2.9	28	254	2.8	25	260	1.5	27	325	1.8	26	274	1.3	27	333	1.2	28	175	1.6	29	239	1.5	28	263	1.7	27	256	1.5	26	308	2.4
1,500-----	28	309	1.8	21	270	7.7	28	274	9.2	21	275	8.3	18	302	6.4	17	275	7.6	22	200	2.4	27	267	5.2	16	285	5.9	21	258	6.3	19	254	1.7	21	255	6.2
2,000-----	28	306	1.6	21	277	11.1	23	276	11.4	19	276	10.8	17	307	9.6	16	278	9.8	18	235	2.0	24	266	7.1	14	287	8.7	17	279	10.2	17	211	1.4	21	264	8.6
2,500-----	27	292	1.7	17	282	15.1	21	276	12.6	17	276	11.5	14	294	12.5	15	279	13.3	17	266	3.9	22	265	9.3	12	295	10.6	15	291	13.8	15	309	4	19	278	10.8
3,000-----	25	255	4.1	17	281	18.2	18	279	12.9	16	279	13.1	12	289	15.2	14	283	15.6	16	270	5.1	21	267	10.5				13	296	16.7	15	17	1.3	19	277	12.6
4,000-----	23	281	7.7	15	278	23.6	16	294	11.6	14	282	17.4	10	296	18.5	10	290	15.5	10	255	7.0	20	266	11.6				11	294	24.3	13	299	2.7	19	271	14.6
5,000-----	18	296	8.2	10	279	24.2	13	300	12.3	11	281	21.2				10	286	19.2	10	277	7.0	15	269	14.9				10	295	28.7	12	329	2.4	17	275	16.2
6,000-----	16	302	10.2				13	300	12.3							10	286	21.7				13	261	17.1						11	17	1.2	15	276	20.0	
	Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)			Spokane, Wash. (725 m.)			Washington, D.C. (24 m.)					
	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations		
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed	
Surface-----	26	288	1.2	29	277	0.8	26	353	2.2	23	295	1.9	21	277	1.7	28	266	1.0	29	272	2.9	25	288	2.0	28	190	1.9	25	196	2.7	26	277	1.8			
500-----	26	284	1.8	29	279	.9	26	350	2.2	23	291	2.2	21	273	3.3	28	279	2.3	28	274	1.6	25	306	2.4	28	203	3.3	25	204	4.7	26	275	5.2			
1,000-----	20	268	3.2	29	270	1.1	26	350	2.2	19	285	5.8	18	271	5.0	24	256	3.5	25	144	.7	23	318	3.7	21	212	6.4	25	204	4.7	26	275	5.2			
1,500-----	17	279	5.1	29	267	1.3	26	311	5.2	18	280	7.9	16	283	9.3	20	264	5.0	23	354	.4	19	323	6.5	19	215	7.3	23	228	6.5	25	285	8.5			
2,000-----	16	288	9.4	29	261	1.9	24	300	6.6	17	286	9.7	16	287	11.8	19	276	8.1	21	340	1.4	17	319	7.8	16	218	7.6	19	249	8.8	24	291	12.1			
2,500-----	15	296	11.8	28	292	4.2	23	300	8.2	17	286	10.9	14	293	12.9	17	278	8.9	20	330	3.5	16	308	9.3	14	228	7.1	19	254	9.1	22	293	13.4			
3,000-----	14	292	14.6	28	292	6.0	23	302	10.3	16	293	13.0	13	291	16.7	16	284	10.3	20	317	4.9	16	303	9.9				19	265	9.7	22	291	15.7			
4,000-----	12	300	19.5	23	288	8.2	19	301	12.3	14	299	15.0	13	293	20.5	15	286	14.9	18	296	7.5	14	305	14.1				12	281	11.9	17	289	21.2			
5,000-----	11	300	23.5	20	279	12.7	17	294	13.8	12	303	18.5	12	293	23.3	14	285	15.6	17	294	9.7							11	290	14.1	13	291	28.8			
6,000-----	17	291	16.5	19	291	16.5	15	295	15.9	11	302	19.8				11	294	16.4	17	282	12.1							10	283	14.7						



# RAWIN DATA

Average monthly resultant winds

Table 22

FEBRUARY 1952

Altitude (meters) m.s.l.	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Burrowswood, La. (3 m.)			Caribou, Me. (191 m.)			Charleston, S. C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N. C. (275 m.)			Hatteras, N. C. (3 m.)			International Falls, Minn. (358 m.)		
	No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations		
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed				
Surface-----	29	330	1.6	28	174	2.6	28	347	0.8	29	127	2.2	29	158	0.4	29	321	2.2	28	270	1.1	28	11	0.2	29	339	1.0	29	297	1.2	29	277	1.6	29	266	0.5
500-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,000-----	---	---	---	28	213	2.9	27	328	4.1	28	207	1.4	29	220	3.3	29	8	3.3	26	258	7.4	28	280	2.5	---	---	---	28	272	3.8	28	269	3.3	29	285	7
1,500-----	---	---	---	28	264	5.0	26	322	5.1	28	292	3.4	28	236	4.8	28	348	3.5	27	265	8.2	28	284	4.9	29	335	1.0	28	277	8.6	26	277	7.9	29	287	3.9
2,000-----	29	306	5.7	28	272	7.4	26	318	6.6	28	294	4.6	27	250	6.9	28	329	2.8	27	271	10.7	27	292	6.5	29	291	1.1	28	281	10.1	25	276	10.3	29	308	5.8
2,500-----	29	299	6.9	28	273	8.8	26	312	7.7	28	279	6.3	26	254	9.2	28	299	3.9	26	275	12.3	27	288	8.8	29	265	1.5	27	279	11.3	26	274	13.6	29	300	7.8
3,000-----	28	293	8.1	27	271	9.0	26	307	8.3	27	267	8.3	25	260	11.6	28	297	4.9	26	270	14.0	27	289	10.5	29	281	3.5	26	276	13.8	26	274	15.5	29	303	9.2
4,000-----	28	285	10.8	25	280	11.5	27	307	9.1	28	265	13.3	23	259	15.0	27	286	6.8	24	270	16.8	26	284	11.8	28	295	7.2	27	271	18.4	22	271	18.4	27	307	12.0
5,000-----	28	292	12.3	24	278	14.8	27	308	11.6	26	271	17.3	19	267	21.0	27	275	8.3	23	273	20.5	21	275	15.1	28	304	9.4	26	269	22.2	19	274	20.2	27	306	15.8
6,000-----	26	283	16.1	23	272	18.1	26	301	11.1	23	268	21.9	17	269	23.4	26	271	8.9	20	278	25.6	24	269	16.8	28	307	11.8	24	271	25.2	12	272	22.3	23	299	17.2
8,000-----	22	287	16.3	15	262	24.4	21	286	12.7	17	255	29.0	10	270	30.1	24	269	13.2	11	263	36.7	19	263	19.1	21	280	11.4	16	264	35.4	---	---	---	---	---	
10,000-----	13	284	18.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12,000-----	10	274	22.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
14,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
18,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
20,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
22,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Altitude (meters) m.s.l.	Little Rock, Ark. (80 m.)			Medford, Oreg. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P.R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)		
	No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations		
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed	
Surface-----	29	162	0.1	29	63	0.1	28	14	0.7	26	326	3.0	29	283	0.7	29	291	1.4	29	51	1.2	29	337	3.0	29	66	0.6	27	98	1.1	29	326	0.5	29	325	1.0
500-----	29	226	2.5	29	132	5.5	28	258	7.7	26	300	6.0	28	249	2.1	29	292	3.0	25	94	1.8	---	---	---	29	172	1.7	25	88	6.0	29	309	1.2	28	8	2.1
1,000-----	29	237	4.0	29	206	2.1	28	234	1.4	21	306	7.7	28	250	4.6	29	289	3.1	24	194	1.9	29	335	3.2	29	221	2.2	25	95	5.4	29	295	2.8	28	8	2.1
1,500-----	27	269	3.8	29	225	4.3	28	235	3.2	21	300	10.0	28	261	6.8	29	274	3.4	21	251	4.1	29	315	4.9	29	267	4.4	25	93	4.2	29	292	4.9	28	348	2.7
2,000-----	27	281	5.7	29	241	6.7	28	253	4.9	22	299	10.9	28	265	7.8	29	272	4.0	21	268	6.4	26	309	4.9	29	282	7.1	24	87	3.5	28	294	6.3	29	325	3.7
2,500-----	27	278	8.1	29	253	8.6	28	265	6.3	20	288	13.1	27	273	9.1	29	275	4.4	27	265	8.9	29	310	5.8	29	277	9.0	25	80	2.2	27	280	7.8	29	311	4.3
3,000-----	27	273	10.6	28	261	8.4	28	262	7.3	20	285	14.4	26	275	11.4	29	283	5.5	28	264	10.4	29	302	6.5	28	283	11.1	25	85	1.5	26	294	9.3	29	310	5.6
4,000-----	24	273	11.6	28	260	9.7	28	261	11.5	16	273	16.8	26	272	15.3	28	284	8.7	29	273	13.0	29	291	7.2	27	279	14.0	26	296	1.1	25	298	11.0	28	293	8.1
5,000-----	22	279	13.5	26	270	11.6	27	264	18.1	15	268	20.6	25	272	18.7	26	290	10.6	29	273	13.7	29	286	7.9	27	274	17.8	26	273	3.1	25	295	12.8	26	290	9.1
6,000-----	19	274	16.6	22	270	12.6	26	269	21.8	15	264	26.1	23	268	22.1	21	292	11.5	27	273	14.6	29	283	8.3	23	271	19.4	26	293	4.7	25	286	14.8	25	288	10.2
8,000-----	14	249	25.4	18	282	15.4	21	273	28.3	11	269	31.6	15	258	32.0	11	333	7.5	22	257	18.1	26	284	10.0	13	269	23.8	27	301	11.9	21	281	15.5	18	268	8.9
10,000-----	---	---	---	12	285	16.4	17	278	37.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
14,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
18,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
20,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
22,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Altitude (meters) m.s.l.	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Swan Island, W. I. (10 m.)			Tatoosh Island, Wash. (33 m.)			Washington, D. C. (88 m.)		
	No of observations			No of observations			No of observations			No of observations			No of observations		
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed	
Surface-----	28	310	1.5	29	155	1.1	29	76	3.1	28	131	1.9	28	250	0.5
500-----	28	323	3.3	---	---	---	---	---	5.9	28	183	3.8	28	273	4.5
1,000-----	28	320	3.8	---	---	3.4	29	101	5.3	27	208	5.6	27	270	7.1
1,500-----	26	325	4.9	29	232	4.6	29	107	3.5	26	223	6.8	26	273	10.6
2,000-----	25	320	5.4	29	248	5.7	25	130	2.8	25	233	6.8	---	---	---
2,500-----	25	306	6.8	29	263	6.7	25	134	2.4	21	237	8.4	---	---	---
3,000-----	25	297	8.3	29	262	7.5	22	155	3.6	23	250	8.3	---	---	---
4,000-----	20	285	9.3	29	269	10.4	20	190	2.0	21	260	11.9	---	---	---
5,000-----	19	289	12.1	29	276	12.9	18	239	2.9	19	263	14.8	---	---	---
6,000-----	17	291	14.9	27	276	12.4	14	256	5.1	18	262	15.3	---	---	---
8,000-----	13	27													



# SOLAR RADIATION DATA

Table 30—Solar radiation intensities calculated in langley's per minute

Sun's zenith distance											Vapor pressure, EST	
Date	A M				00°	P M.				7 30 a. m.	1 30 p. m.	
	78 7°	75 7°	70 7°	60 0°		60 0°	70 7°	75 7°	78 7°			
BOSTON, MASS.												
Air mass												
	4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96			
Feb. 1-----										Mb.	Mb.	
28-----				1.32		1.40	0.92	0.70	0.48	4.4	4.0	
29-----							1.16	.99		3.0	2.6	
Averages				1.32		1.40	1.04	.85	.48			
Departures				+1.17		+1.18	-.01	+0.02	-.19			
RATIO BOSTON BLUE HILL ON COMPARABLE DATES												
						1.05	0.95	0.96				
BLUE HILL, MASS.												
Air mass												
	4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86			
Feb. 1-----										Mb.	Mb.	
3-----	0.81									2.9	5.9	
6-----		0.94								4.9	6.5	
12-----						1.36	1.22	1.06	0.96	3.5	2.4	
13-----	.98	1.11	1.25	1.41		1.41	1.28	1.17	1.07	1.9	1.0	
14-----	.98	1.07	1.18	1.31		1.28	1.12	.96	.86	1.0	1.3	
15-----	.96	1.03	1.17	1.37						1.1	1.7	
16-----	1.02	1.12	1.26	1.40		1.41	1.24	1.12	1.01	1.3	1.7	
20-----	1.00	1.09	1.30							1.4	3.6	
29-----	.95	1.05	1.19	1.35		1.33	1.25	1.13	1.03	2.3	3.3	
30-----						1.33	1.17	1.03	.90	2.3	2.1	
Averages	.96	1.06	1.21	1.36		1.35	1.21	1.08	.97			
Departures	+0.03	+0.04	+0.10	+0.06		+0.05	+0.06	-.07	+0.07			
LINCOLN, NEBR.												
Air mass												
	4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77			
Feb. 4-----	0.90	1.09	1.22	1.36		1.36	1.22	1.09	0.98	4.0	4.6	
6-----	.94	1.02	1.15	1.33		1.34	1.18	1.05	.94	2.2	5.1	
7-----	.92	1.03	1.16	1.31		1.31				4.2	5.6	
9-----				1.24		1.27	1.16	1.03	.92	5.3	4.8	
11-----						1.42	1.27	1.09	.96	.85	3.7	
20-----						1.32	1.18	1.05	.94	.83	2.3	
26-----			1.02	1.22		1.40	1.22	.99	.86	.75	2.9	3.7
Averages	.94	1.05	1.14	1.29		1.38	1.28	1.12	.99	.88		
Departures	+0.04	+0.05	-.01	-.05		-.09	-.05	-.08	-.01	-.02		
* Extrapolated												
TABLE MOUNTAIN, CALIF.												
Air mass												
	3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76			
Feb. 2-----				1.55						Mb.	Mb.	
3-----				1.51								
6-----				1.53								
10-----				1.48								
11-----				1.53								
14-----				1.49								
16-----				1.46								
19-----				1.50								
21-----				1.50								
28-----				1.48								
Averages				1.50								
Departures				-.02								
MADISON, WIS.												
Air mass												
	4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81			
Feb. 9-----	0.69	0.80	0.95	1.16						Mb.	Mb.	
12-----	.57	.69	.87							3.7	4.8	
22-----	.77	.92	1.06	1.14						1.2	2.7	
25-----	.88	1.01	1.11	1.28						2.0	3.5	
Averages	.73	.86	1.00	1.19								
Departures	-.12	-.14	-.13	-.13								
ALBUQUERQUE, N. M.												
Air mass												
	4.08	3.26	2.44	1.63	*0.815	1.63	2.44	3.26	4.08			
RECORDER INOPERATIVE												
TACUBAYA, D. F., MEXICO												
Air mass												
	3.83	3.07	2.31	1.53	0.77	1.53	2.31	3.07	3.83			
NO DATA DURING FEBRUARY 1952												

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface.  
An explanation of Tables 30 and 31 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given

in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.



# SOLAR RADIATION DATA

FEBRUARY 1952

Table 31a.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

Date-----	29	30	31	1	2	3	4	Aver-	5	6	7	8	9	10	11	Aver-	12	13	14	15	16	17	18	Aver-
Langleys-----	486	586	382	443	85	184	25	age	213	373	36	386	273	413	46	age	594	566	569	599	512	27	48	age
								312								249								416
Date-----	19	20	21	22	23	24	25	Aver-																
Langleys-----	507	599	50	229	169	191	91	age																
								262																

Table 31b.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during the month

Date-----	29	30	31	1	2	3	4	Aver-	5	6	7	8	9	10	11	Aver-	12	13	14	15	16	17	18	Aver-
Langleys-----	62	73	67	48	19	35	11	age	29	(51)	31	70	50	46	16	(42)	50	52	51	48	42	35	67	age
								45																48
Date-----	19	20	21	22	23	24	25	Aver-																
Langleys-----	110	96	48	116	76	119	(82)	(92)																

Table 31c.-Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

Date-----	29	30	31	1	2	3	4	Aver-	5	6	7	8	9	10	11	Aver-	12	13	14	15	16	17	18	Aver-
Langleys-----	92	56	97	80	79	80	43	age	71	79	41	74	94	72	42	age	49	55	49	47	62	37	66	age
								75								67								53
Date-----	19	20	21	22	23	24	25	Aver-																
Langleys-----	91	62	63	186	113	---	129	107																

Note.-Langley is the unit used to denote one gram calorie per square centimeter



## FEBRUARY 1952

FEBRUARY 1952

	Albuquerque, N.Mex.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Big Spring, Tex.	Bismarck, N. Dak.	Blue Hill, Mass.	Boston, Mass.	Brownsville, Tex.	Canton Is., Pacific Area	Charleston, S. C.	Columbia, Mo.	Columbus, Ohio	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	E. Wareham, Mass.	Edmonton, Alberta	El Paso, Tex.	Fairbanks, Alaska	Ft. Worth, Tex.	Fresno, Calif.	Grand Junction, Colo.	Grand Lake, Colo.	Griffin, Ga.	Hatteras, N. C.	Honolulu, T.H.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Keflavik, Iceland	Lake Charles, La.	Lander, Wyo.	Las Vegas, Nev.						
1952	29	398	7	45	397	---	276	235	443	---	122	377	168	124	(361)	173	202	124	425	42	416	77	322	321	411	140	514	299	307	195	408	291	285							
January	348	417	4	60	313	---	315	260	481	---	396	352	282	59	368	205	245	131	309	22	408	73	322	321	411	140	514	299	307	195	408	291	285							
January	30	374	4	60	313	---	248	208	210	---	410	299	282	141	350	179	234	154	424	312	416	73	322	321	411	140	514	299	307	195	408	291	285							
January	31	409	5	66	317	---	262	232	350	---	379	54	30	360	60	226	73	441	38	225	272	331	344	361	401	489	43	339	110	273	293	285	---							
January	1	400	303	381	5	---	96	79	486	---	84	346	51	135	361	149	74	138	(419)	31	315	291	94	117	123	140	514	---	378	81	181	133	375	---						
February	2	355	58	139	5	---	249	150	433	---	232	36	52	314	(173)	16	248	174	365	48	313	330	147	132	67	514	---	378	81	181	133	375	---							
February	3	272	389	167	(7)	---	249	150	433	---	232	36	52	314	(173)	16	248	174	365	48	313	330	147	132	67	514	---	378	81	181	133	375	---							
February	4	417	341	220	7	---	307	139	36	---	307	139	36	281	(396)	45	30	175	456	43	475	299	302	92	237	371	498	52	329	46	138	302	321	---						
Averages	(370)	335	294	(5)	(3)	---	199	170	412	---	277	232	131	158	(338)	118	180	138	(406)	35	325	(239)	260	216	289	269	508	148	333	165	(228)	284	329	---						
Departures	---	43	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---						
February	5	424	432	197	(9)	---	360	258	108	---	360	258	108	314	(324)	59	132	153	450	48	437	318	359	262	185	(108)	479	221	371	79	475	316	375	---						
February	6	430	444	---	---	---	420	73	37	---	420	73	37	237	396	87	269	140	444	73	471	349	365	309	338	400	545	89	390	159	476	291	376	---						
February	7	423	476	431	14	---	154	396	197	---	154	396	197	278	392	113	79	119	434	40	455	308	372	373	429	(85)	525	176	272	298	476	274	324	---						
February	8	319	468	434	14	---	445	387	210	---	445	387	210	344	(385)	24	251	168	408	71	395	272	397	381	423	431	463	241	274	282	(456)	259	316	---						
February	9	363	445	400	14	---	426	367	305	---	426	367	305	342	381	266	311	82	438	55	436	365	328	389	353	403	427	295	312	273	(412)	336	204	---						
February	10	243	468	418	12	---	446	253	290	---	446	253	290	252	283	319	256	239	164	275	45	461	359	407	430	465	264	404	300	(395)	352	345	---							
February	11	278	410	452	9	---	164	348	290	---	164	348	290	47	50	313	189	32	190	538	41	341	330	314	327	426	327	386	308	376	(321)	326	396	---						
Averages	---	354	449	388	(12)	---	370	327	179	---	370	327	179	283	---	125	168	145	427	53	428	300	362	347	366	(312)	470	228	342	221	---	308	334	---						
Departures	---	-2	462	493	---	---	---	-7	00	---	---	440	---	---	---	---	-37	-34	-13	46	---	---	---	---	---	---	---	---	---	---	---	---	---	---						
February	12	297	374	207	38	---	318	288	367	---	318	288	367	331	379	148	329	236	400	78	457	420	255	226	297	452	506	222	433	294	319	302	426	---						
February	13	364	523	357	40	---	368	378	321	---	368	378	321	361	194	243	326	219	397	(61)	473	312	225	242	342	369	460	154	433	343	355	183	413	---						
February	14	337	396	377	40	---	107	285	193	---	107	285	193	262	(200)	264	338	240	381	(115)	283	397	422	248	43	114	113	423	378	102	440	429	---							
February	15	33	79	35	79	---	464	121	341	---	464	121	341	297	538	92	154	271	513	104	277	254	259	296	68	101	---	166	429	255	339	373	369	---						
February	16	470	470	470	50	---	67	455	101	---	67	455	101	37	31	537	308	28	149	362	133	468	314	312	336	155	175	---	365	458	81	(516)	347	354	---					
February	17	299	493	119	50	---	450	61	453	---	450	61	453	390	156	(450)	269	78	264	447	54	198	353	279	216	461	480	---	191	470	99	(516)	309	427	---					
Averages	---	355	353	205	45	---	343	152	262	---	343	152	262	246	375	---	242	249	210	418	(83)	315	355	310	273	212	250	---	190	438	249	(335)	333	403	---					
Departures	---	-26	-38	-74	---	---	---	---	---	---	---	---	---	---	---	---	46	24	119	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---						
February	19	477	465	59	92	---	479	160	255	---	479	160	255	290	435	455	320	278	158	147	107	355	403	439	(390)	464	417	---	89	458	419	149	454	419	---					
February	20	514	55	118	71	---	485	296	366	---	485	296	366	347	(308)	320	455	135	232	482	64	351	279	508	(102)	538	285	316	339	---	325	302	188	468	408	235	---			
February	21	490	447	66	93	---	212	394	63	---	212	394	63	41	286	261	330	253	191	33	280	438	117	308	345	504	442	---	96	422	163	394	447	373	---					
February	22	486	118	---	61	---	109	411	234	---	109	411	234	194	217	313	283	169	(250)	224	216	278	412	125	138	261	355	413	155	428	---	314	407	229	48	446	375	---		
February	23	295	48	126	75	---	105	387	379	---	105	387	379	221	103	260	210	166	241	177	280	526	(125)	89	301	127	240	96	207	---	144	427	259	88	442	399	---			
February	24	536	52	73	102	---	161	417	415	---	161	417	415	---	198	135	69	82	360	398	109	215	225	230	512	149	103	302	486	273	65	41	108	488	454	---				
February	25	544	128	---	(70)	---	126	170	357	---	126	170	357	130	93	148	383	480	233	333	(463)	351	---	204	552	120	50	438	496	486	280	275	---	388	494	211	101	475	469	---
Averages	---	(441)	195	196	(72)	---	366	319	205	---	366	319	205	247	(314)	205	224	254	(497)	(121)	226	332	359	(368)	261	311	---	225	437	261	194	451	389	---						
Departures	---	442	-79	---	---	---	---	-28	-82	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				

Accumulated Departures January 1 to February 25, 1952

Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.



# SOLAR RADIATION DATA

Table 33.—Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in landkeys — Continued

FEBRUARY 1952

	Little Rock, Ark.	Los Angeles, Calif. (WBAS)	Madison, Wis.	Medford, Oreg.	Miami, Fla.	Nashville, Tenn.	Newport, R. I.	North Bend, Wash.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Ottawa, Ontario	Pearl Harbor, T.H.	Phoenix, Ariz.	Put-In-Bay, Ohio	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	Salt Lake City, Utah	San Antonio, Tex.	Santa Maria, Calif.	Sault Ste. Marie, Mich.	Saville, N. Y.	Schenectady, N. Y.	Seabrook, N. J.	Seattle, Wash. (U. of W.)	Seattle-Tacoma, Wash.	State College, Pa.	Stillwater, Okla.	Swan Island, W.I.	Toronto, Ontario	Upton, N. Y.	Washington, D. C. (WBCO)	Washington, D. C. (Amer. U.)	Winnipeg, Manitoba			
1952																																					
January 29--	337	194	271	150	505	310	257	---	314	399	282	382	293	206	135	193	469	252	469	370	264	310	263	291	121	168	262	226	396	247	295	330	---	---	---	183	
January 30--	280	377	205	186	510	345	313	---	365	305	293	409	388	286	244	366	182	182	475	385	132	346	274	310	116	105	264	243	541	236	311	295	---	---	---	165	
January 31--	236	217	260	186	386	217	254	---	311	411	---	396	397	262	202	355	109	109	260	342	137	280	147	310	116	105	264	243	541	236	311	295	---	---	---	161	
February 1--	54	176	227	37	374	285	232	---	---	310	290	71	469	41	64	242	381	189	---	350	98	290	124	289	130	162	121	93	(172)	29	197	294	---	---	---	115	
February 2--	67	412	85	102	201	53	99	65	103	245	101	463	408	148	186	353	124	---	---	402	83	121	71	162	91	78	(71)	106	(465)	65	103	293	---	---	---	181	
February 3--	89	339	53	128	494	73	278	46	108	70	221	509	418	48	211	339	---	(298)	---	406	142	281	236	162	44	54	(27)	17	(454)	115	276	37	---	---	---	87	
February 4--	89	376	81	240	---	34	56	150	108	464	47	485	413	45	213	338	---	249	---	377	122	91	43	108	168	89	(43)	352	(550)	25	78	68	---	---	---	80	
Averages--	167	307	169	133	412	188	213	---	226	312	171	445	391	152	205	341	(200)	---	---	376	138	235	165	222	107	105	149	184	---	132	213	208	---	---	---	139	
Departures--	---	---	-20	-53	---	+19	+7	---	+38	+22	-21	+1	+41	-15	-25	+82	-21	---	---	---	---	+44	+38	+73	+5	---	---	-4	-62	---	-9	+55	+30	---	---	---	-41
February 5--	38	403	99	126	---	303	133	63	201	387	152	506	427	127	223	406	306	---	---	414	215	287	89	285	46	62	(90)	311	211	51	225	124	---	---	---	131	
February 6--	400	415	269	136	---	63	292	---	66	458	284	504	443	40	181	415	328	---	---	419	307	353	295	261	168	173	(127)	374	538	119	311	298	---	---	---	112	
February 7--	393	300	219	160	---	320	133	217	246	459	317	471	400	284	244	324	292	---	---	177	116	191	245	255	76	96	(188)	361	592	188	213	317	---	---	---	119	
February 8--	389	371	161	189	---	368	287	141	380	464	190	426	366	104	148	219	367	---	---	306	213	233	177	272	111	154	204	371	(378)	138	(230)	253	---	---	---	108	
February 9--	399	262	270	287	---	385	255	80	398	453	269	356	123	249	265	286	294	---	---	392	157	357	266	333	53	105	252	363	356	247	313	(286)	---	---	---	163	
February 10--	288	350	251	274	---	343	308	215	365	344	316	494	217	289	258	194	299	---	---	281	102	399	263	344	210	243	305	225	(549)	221	337	354	---	---	---	210	
February 11--	271	283	299	193	---	395	41	150	424	142	202	415	472	150	262	234	237	---	---	152	288	169	184	---	111	97	117	156	---	135	(254)	266	---	---	---	235	
Averages--	311	340	224	194	---	311	207	144	297	387	281	453	343	178	226	297	294	---	---	306	200	276	217	292	111	133	183	309	(437)	157	(269)	(271)	---	---	---	154	
Departures--	---	---	+18	+4	---	+115	-10	+9	---	+73	+57	+61	-25	-8	-11	+2	+64	---	---	-50	-16	+74	+12	+79	-7	---	---	+9	+58	-16	+71	+43	---	---	---	-42	
February 12--	94	461	261	253	514	83	376	176	183	444	354	497	435	333	155	442	125	---	---	442	237	309	338	(291)	166	158	348	248	---	232	349	(366)	---	---	---	196	
February 13--	334	421	268	262	457	172	370	81	92	319	323	355	332	315	158	437	316	---	---	459	310	349	304	347	162	174	---	---	---	---	---	---	---	---	---	192	
February 14--	341	446	162	153	445	329	376	75	307	259	344	434	476	285	209	471	235	---	---	(434)	338	246	336	344	36	69	350	48	---	238	345	---	---	---	172		
February 15--	100	426	184	160	543	128	388	157	343	194	350	434	471	246	349	447	229	---	---	443	309	406	352	344	36	69	350	48	---	299	391	273	---	---	---	258	
February 16--	107	420	325	136	439	53	301	---	39	362	268	---	469	108	183	427	150	---	---	306	326	188	248	112	272	237	(44)	346	---	126	197	62	---	---	---	294	
February 17--	411	321	332	216	362	283	30	176	82	478	133	---	371	201	136	152	168	---	---	407	346	37	64	32	128	163	(53)	381	---	95	29	70	---	---	---	298	
February 18--	420	489	114	146	465	388	77	---	410	490	286	---	488	395	66	453	423	---	---	401	368	220	300	353	196	266	225	77	---	311	(178)	366	---	---	---	298	
Averages--	258	426	207	175	461	205	274	133	208	351	300	---	438	269	174	404	254	---	---	(413)	394	288	284	(261)	145	163	229	193	---	250	(266)	(240)	---	---	---	203	
Departures--	---	---	-18	-38	---	-22	+31	-32	---	+16	+57	---	-41	-44	-7	+75	-8	---	---	+23	+73	+59	+63	+24	-5	---	---	+51	-31	---	+79	+44	-13	---	---	-17	
February 19--	137	454	59	164	430	283	402	97	405	479	345	---	499	---	215	563	402	---	---	471	327	388	374	345	106	118	310	394	---	333	377	359	---	---	---	---	
February 20--	455	238	138	287	563	351	398	---	91	534	316	---	496	---	310	167	287	---	---	251	188	355	325	330	137	205	147	414	---	34	355	243	---	---	---	---	
February 21--	412	437	294	350	427	433	46	237	465	277	171	---	496	---	345	346	330	---	---	468	238	85	174	312	223	288	229	201	---	198	83	346	347	---	---	---	---
February 22--	75	365	289	91	516	181	287	78	162	306	284	---	496	---	476	394	365	---	---	349	190	377	332	344	187	197	228	152	---	253	381	282	301	---	---	---	---
February 23--	154	229	152	328	382	92	305	117	147	131	302	---	543	312	242	60	186	---	---	295	272	388	270	342	220	233	358	24	---	196	364	326	337	---	---	---	---
February 24--	231	488	346	279	442	199	398	194	168	67	288	---	519	332	362	494	440	---	---	488	339	366	361	226	153	157	11	---	---	177	361	210	195	---	---	---	---
February 25--	41	492	368	200	433	115	328	153	48	196	328	---	533	318	190	501	396	---	---	484	373	353	183	298	63	(62)	240	241	---	315	314	337	325	---	---	---	---
Averages--	215	385	237	243	455	236	309	146	212	285	290	---	490	---	297	332	344	---	---	401	274	333	288	314	155	(180)	239	205	---	215	319	300	301	---	---	---	---
Departures--	---	---	-9	-7	---	-4	+47	-60	-64	-52	+23	---	+41	---	+4	+9	+47	---	---	+13	+43	+76	+80	+45	-36	---	+19	---	---	+25	+71	+39	+36	---	---	---	---

Accumulated Departures, January 1 to February 25, 1952

---	---	-742	-252	---	---	+378	-126	---	-147	+1442	---	-1596	-420	---	-1232	+875	+1183	---	---	-70	-3042051	---	+1031	-539	---	---	+355	-2121	---	---	+1022	+575	+203	---	---	
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note.--Langley is the unit used to denote one gr calorie per square centimeter  
Values in parentheses are interpolated.

W. R. P. C. Crest Lapoega, Tenn. --- 6/2/52 --- 2200

Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.

W.R.P.C. Chattanooga, Tenn. --- 6/2/52 --- 2200











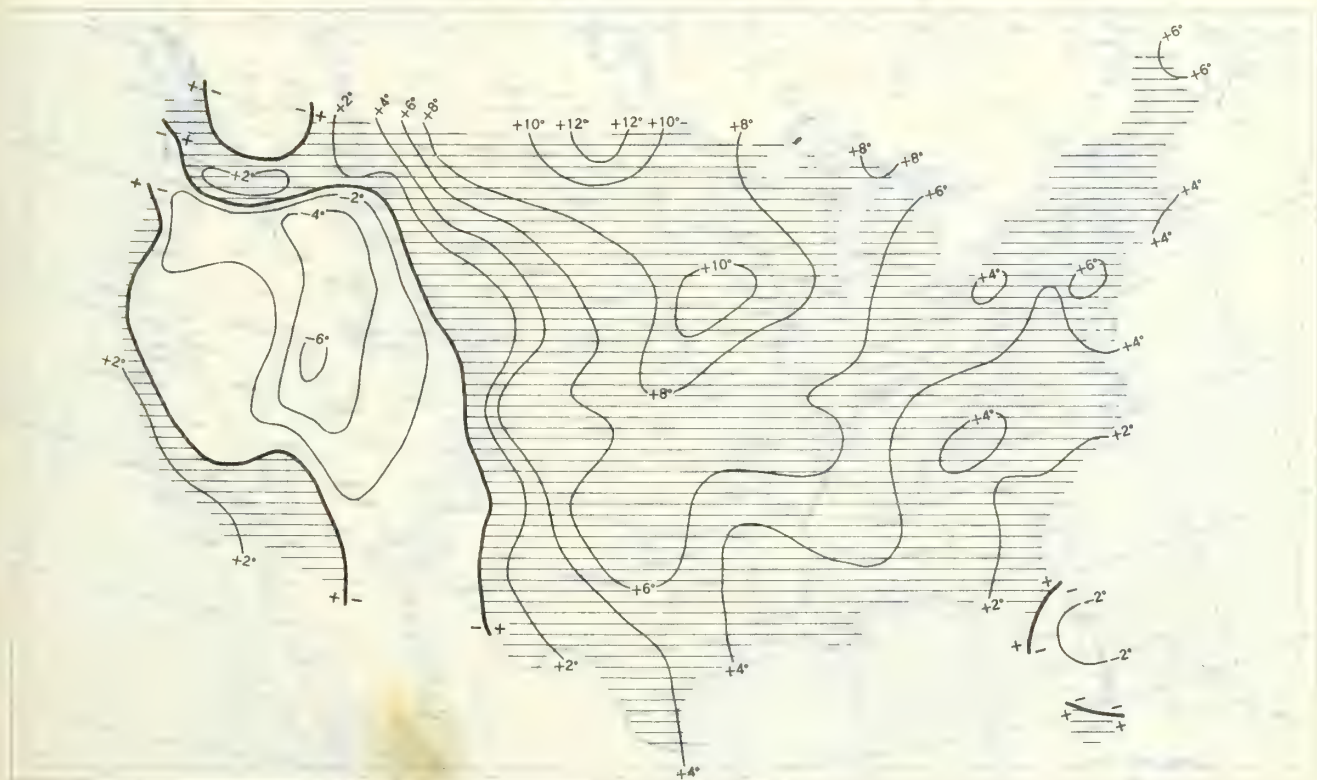




Chart I. A. Average Temperature ( $^{\circ}\text{F.}$ ) at Surface, February 1952.



B. Departure of Average Temperature from Normal ( $^{\circ}\text{F.}$ ), February 1952.

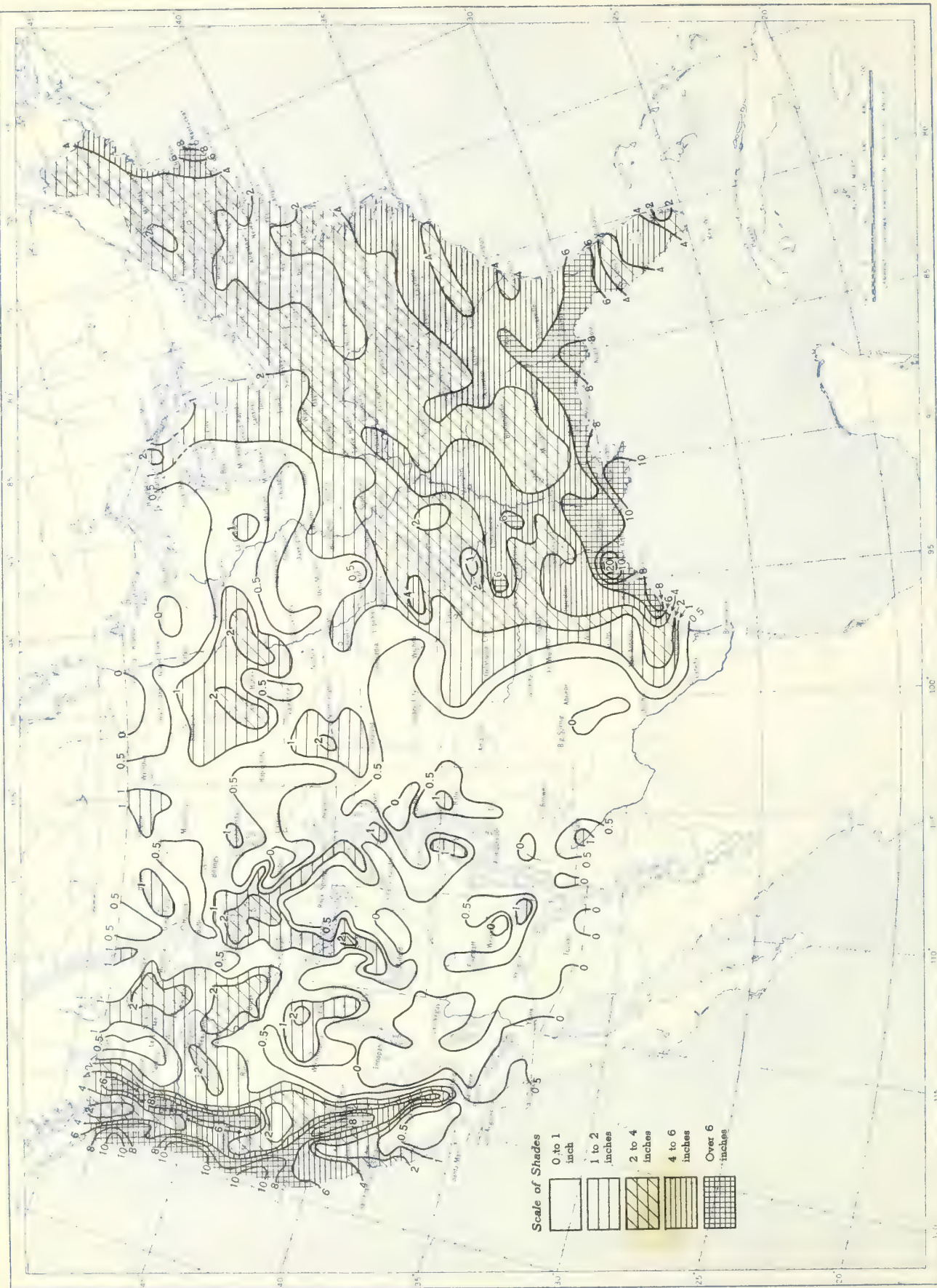


A. Based on reports from 800 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Normal average monthly temperatures are computed for Weather Bureau stations having at least 10 years of record.



Chart II. Total Precipitation (Inches), February 1952.



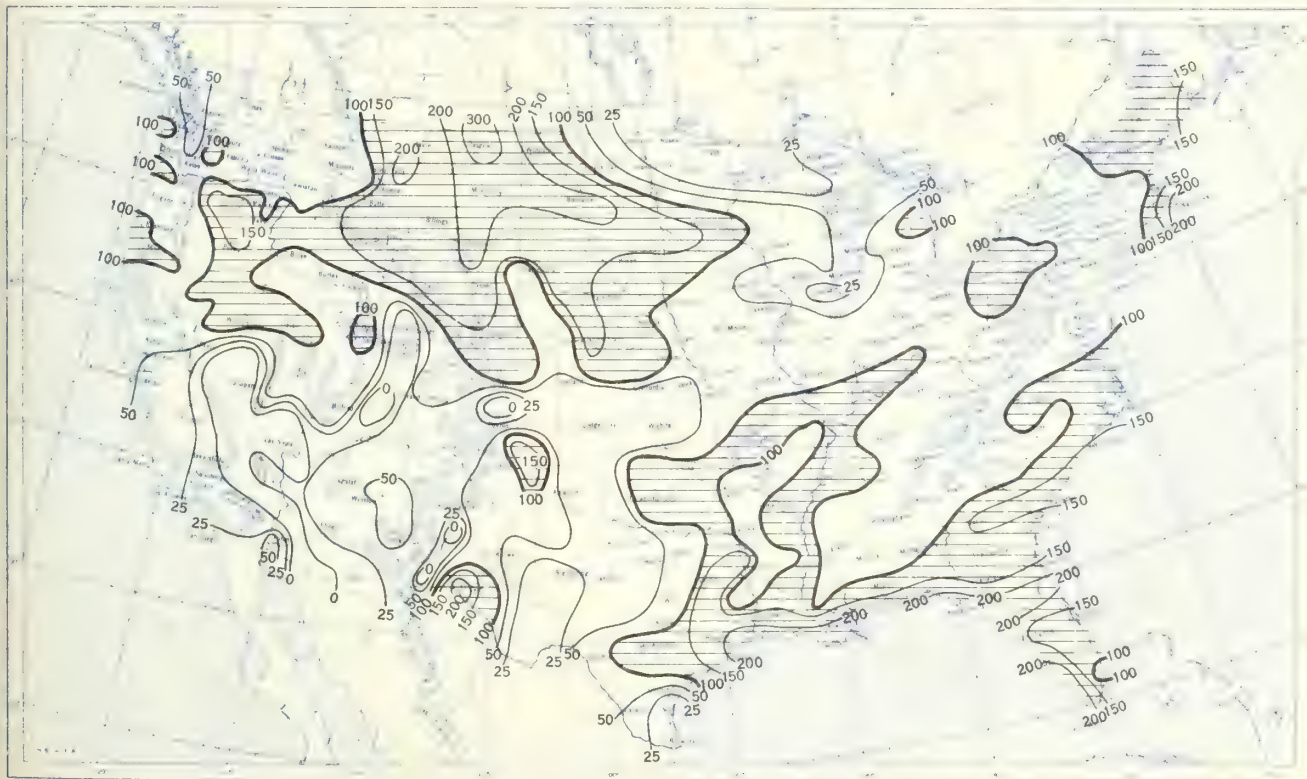
Based on daily precipitation records at 800 Weather Bureau and cooperative stations.



Chart III. A. Departure of Precipitation from Normal (Inches), February 1952.



B. Percentage of Normal Precipitation, February 1952.



Normal monthly precipitation amounts are computed for stations having at least 10 years of record.



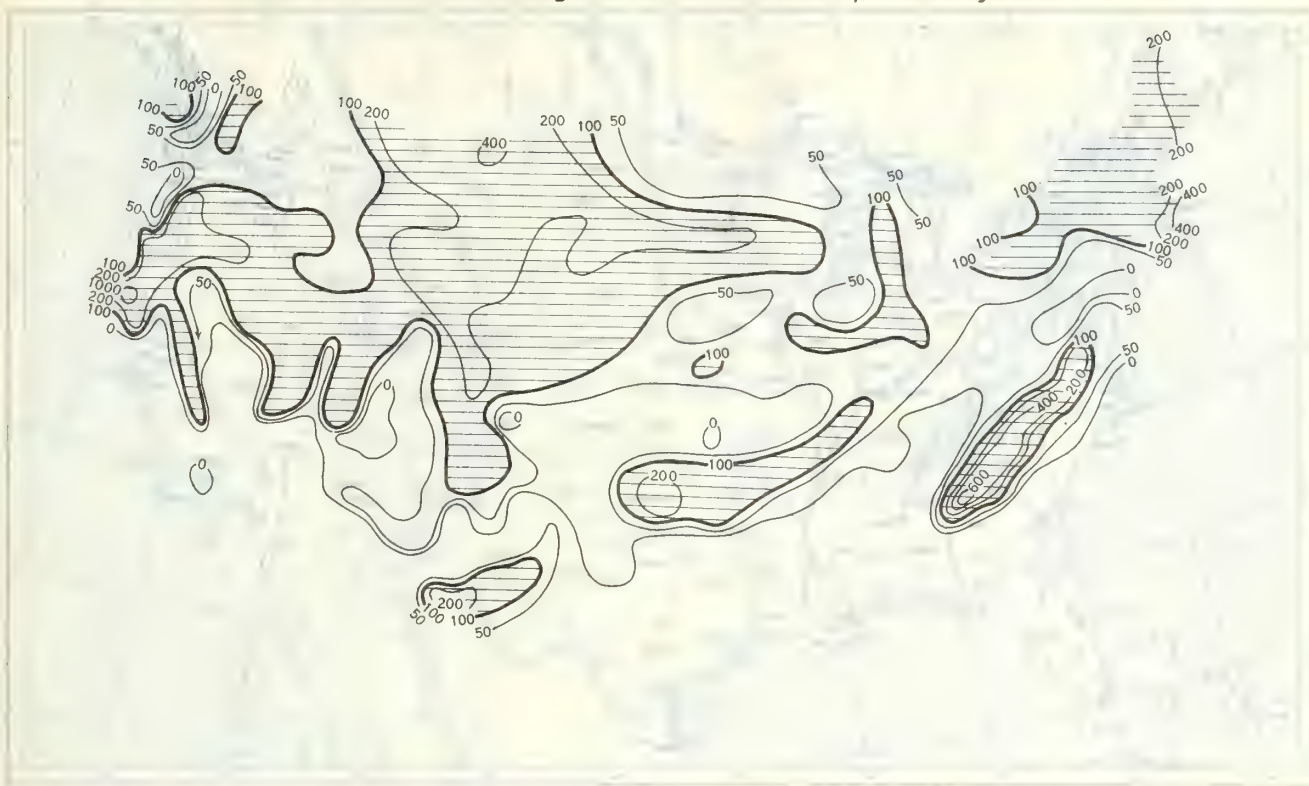
Chart IV. Total Snowfall (Inches), February 1952.



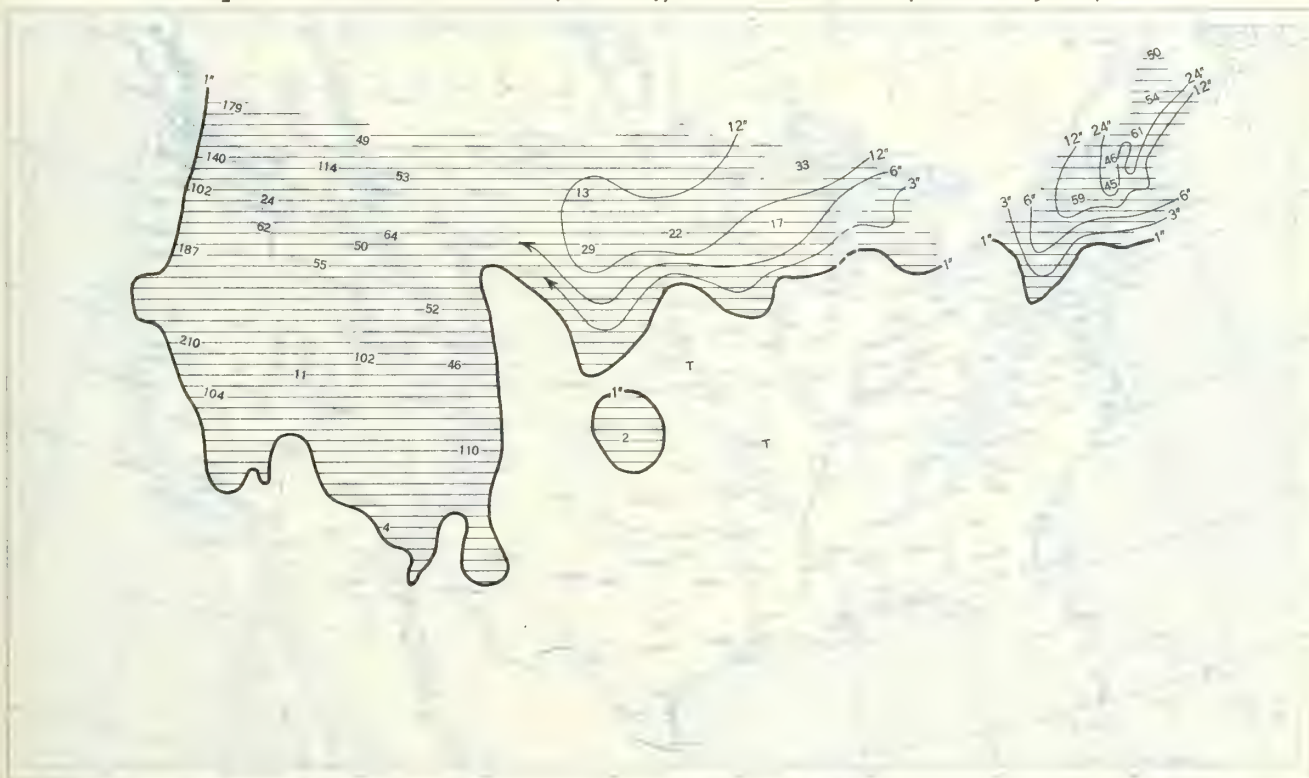
This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only as a matter of convenience. A full and complete record of snowfall is available from the Weather Bureau, particularly in the far West, earlier and later in the year.



Chart V. A. Percentage of Normal Snowfall, February 1952.



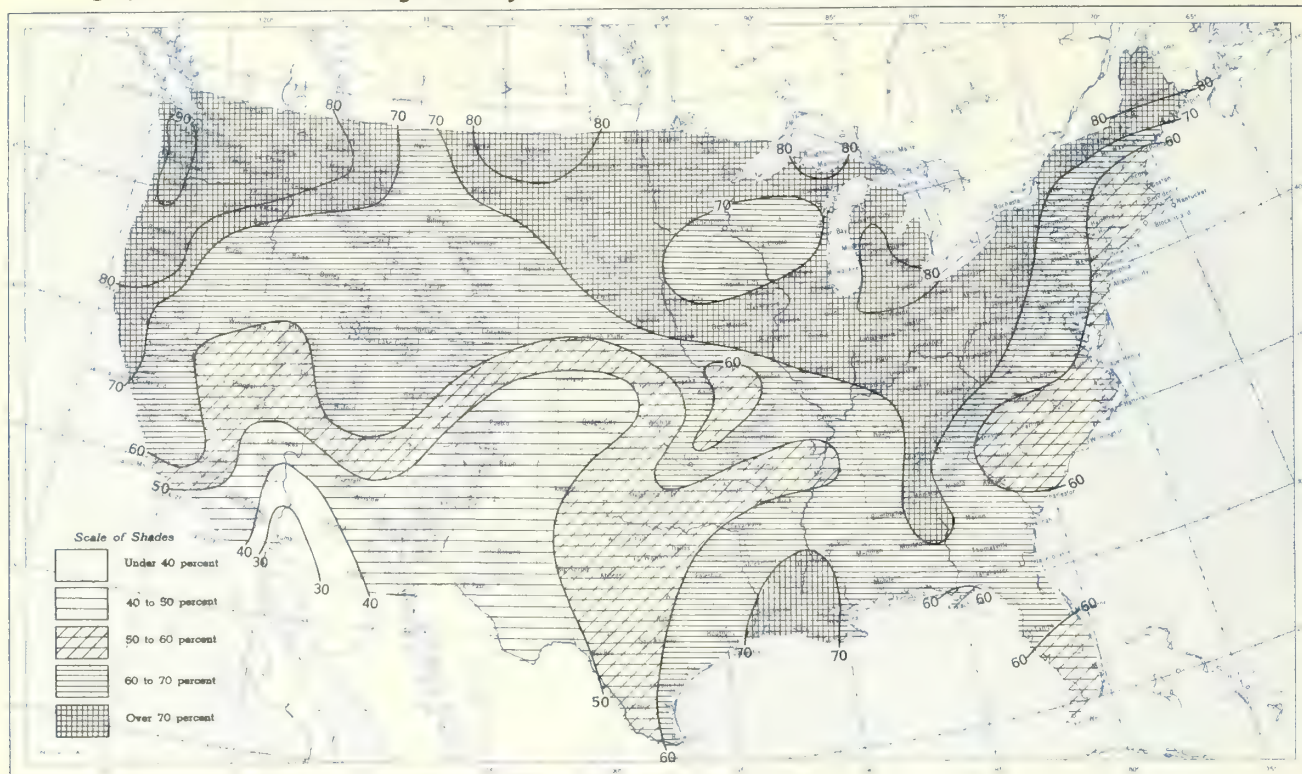
B. Depth of Snow on Ground (Inches), 7:30 a. m. E. S. T., February 26, 1952.



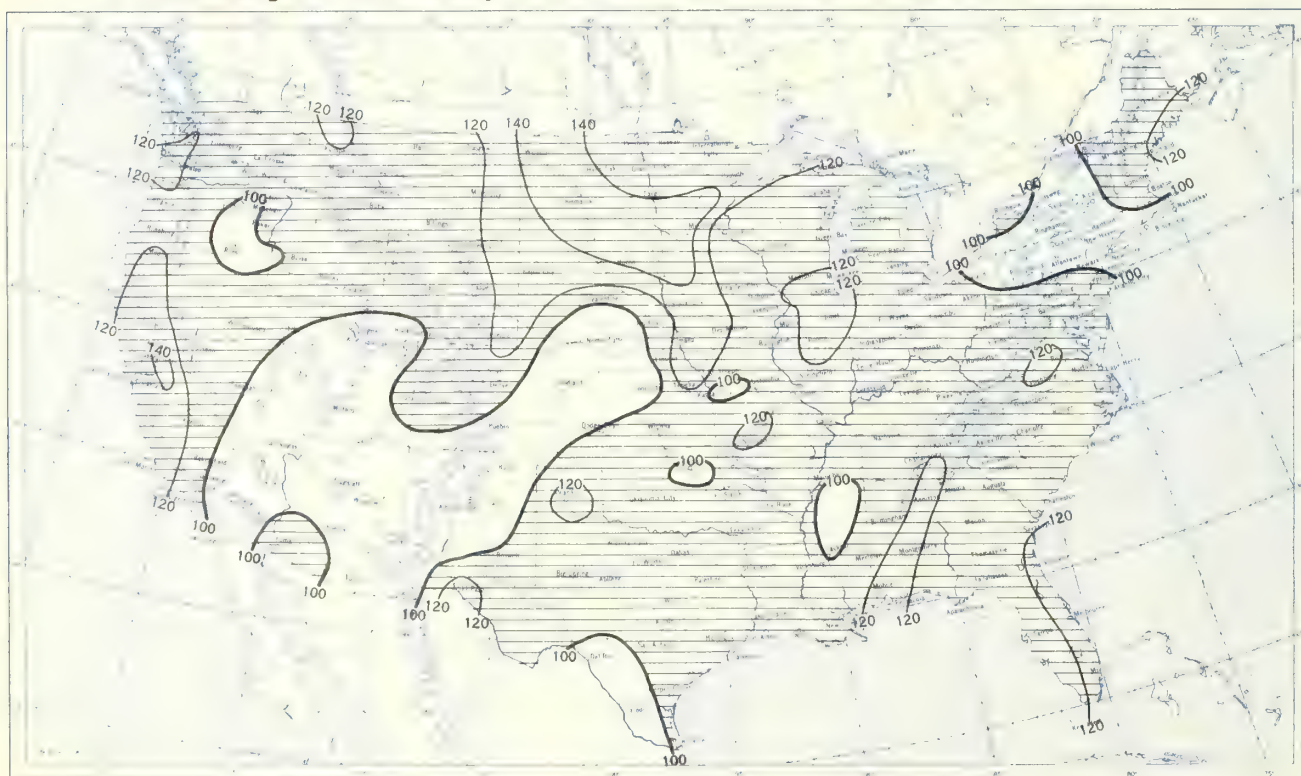
A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.  
 B. Shows depth currently on ground at 7:30 a. m. E. S. T., of the Tuesday nearest the end of the month. It is based on reports from Weather Bureau and cooperative stations. Dashed line shows greatest southern extent of snowcover during month.



Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, February 1952.



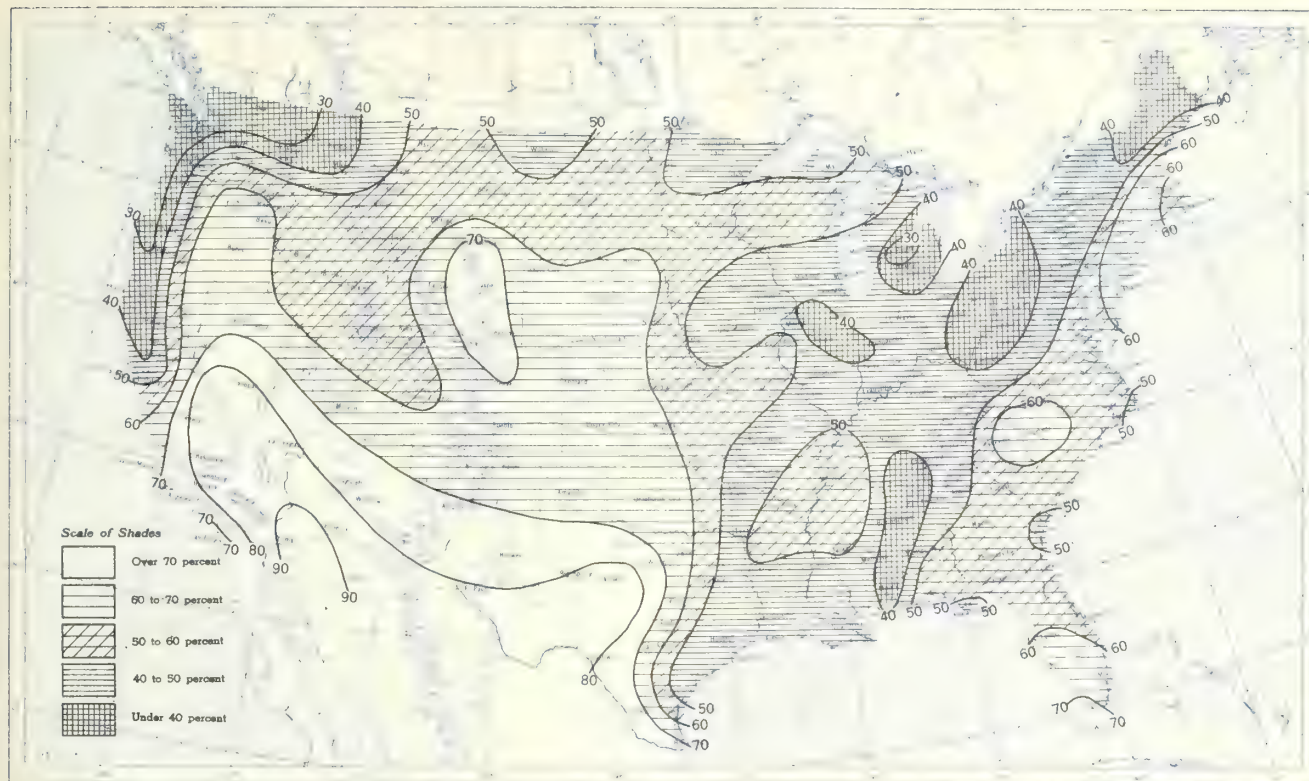
B. Percentage of Normal Sky Cover Between Sunrise and Sunset, February 1952.



A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.



Chart VII. A. Percentage of Possible Sunshine, February 1952.



B. Percentage of Normal Sunshine, February 1952.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.



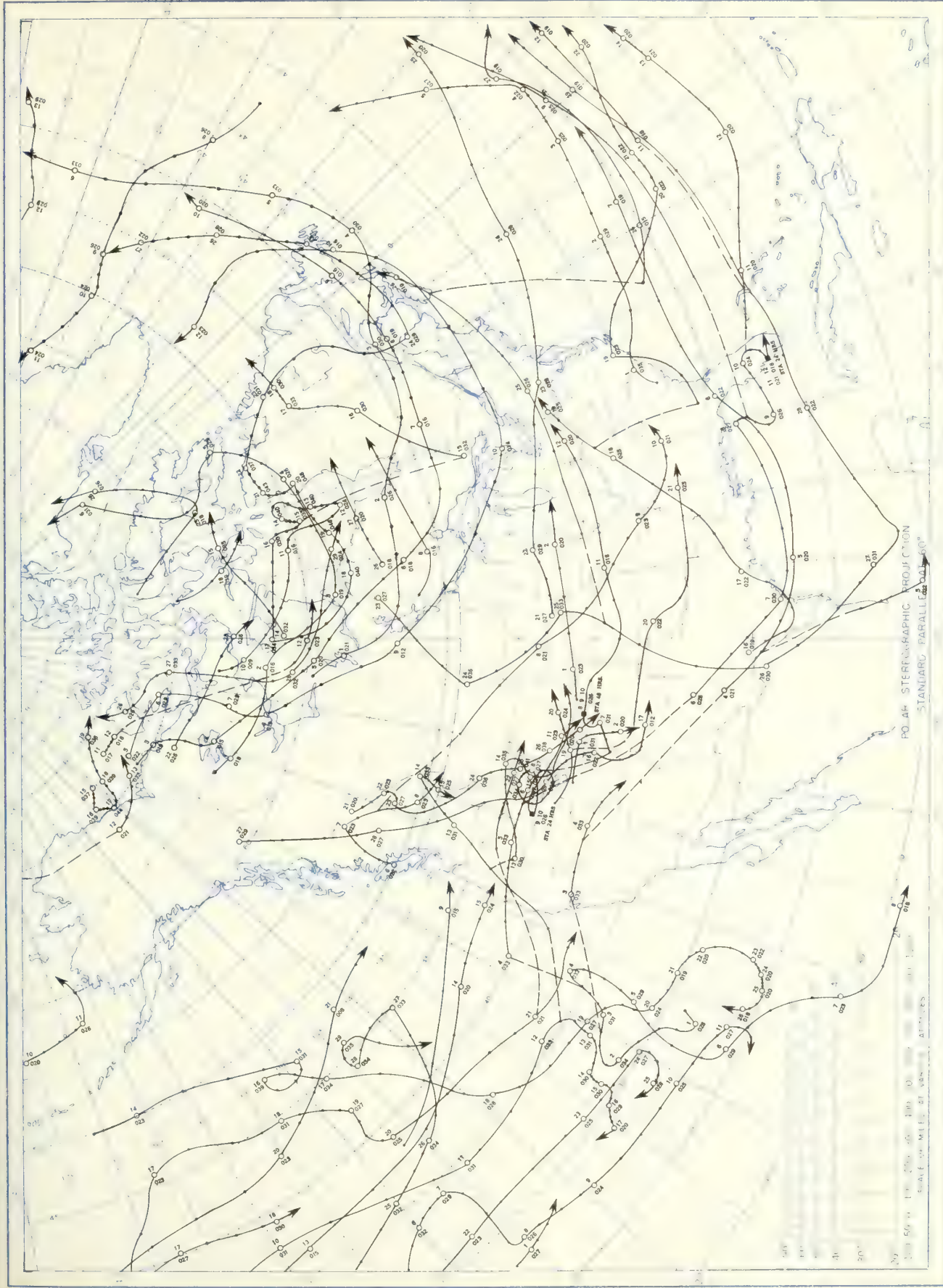
Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, February 1952. Inset: Percentage of Normal Average Daily Solar Radiation, February 1952.



Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm. <sup>-2</sup>). Basic data for isolines taken from *Monthly Weather Review*, Vol. 80, No. 2, February 1952. Normals are from 1941-50.



Chart IX. Tracks of Centers of Anticyclones at Sea Level, February 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



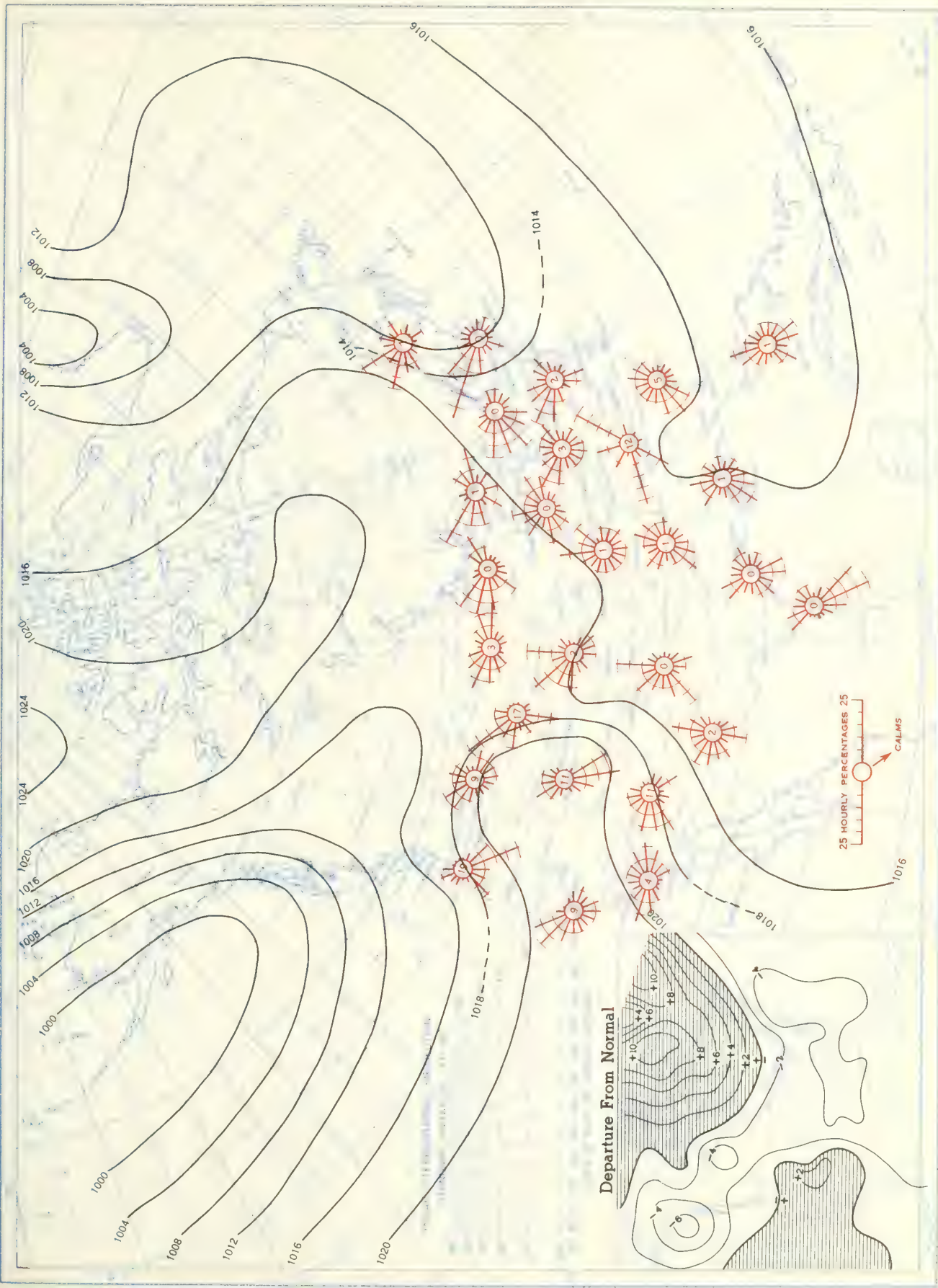
Chart X. Tracks of Centers of Cyclones at Sea Level, February 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. See Chart IX for explanation of symbols.



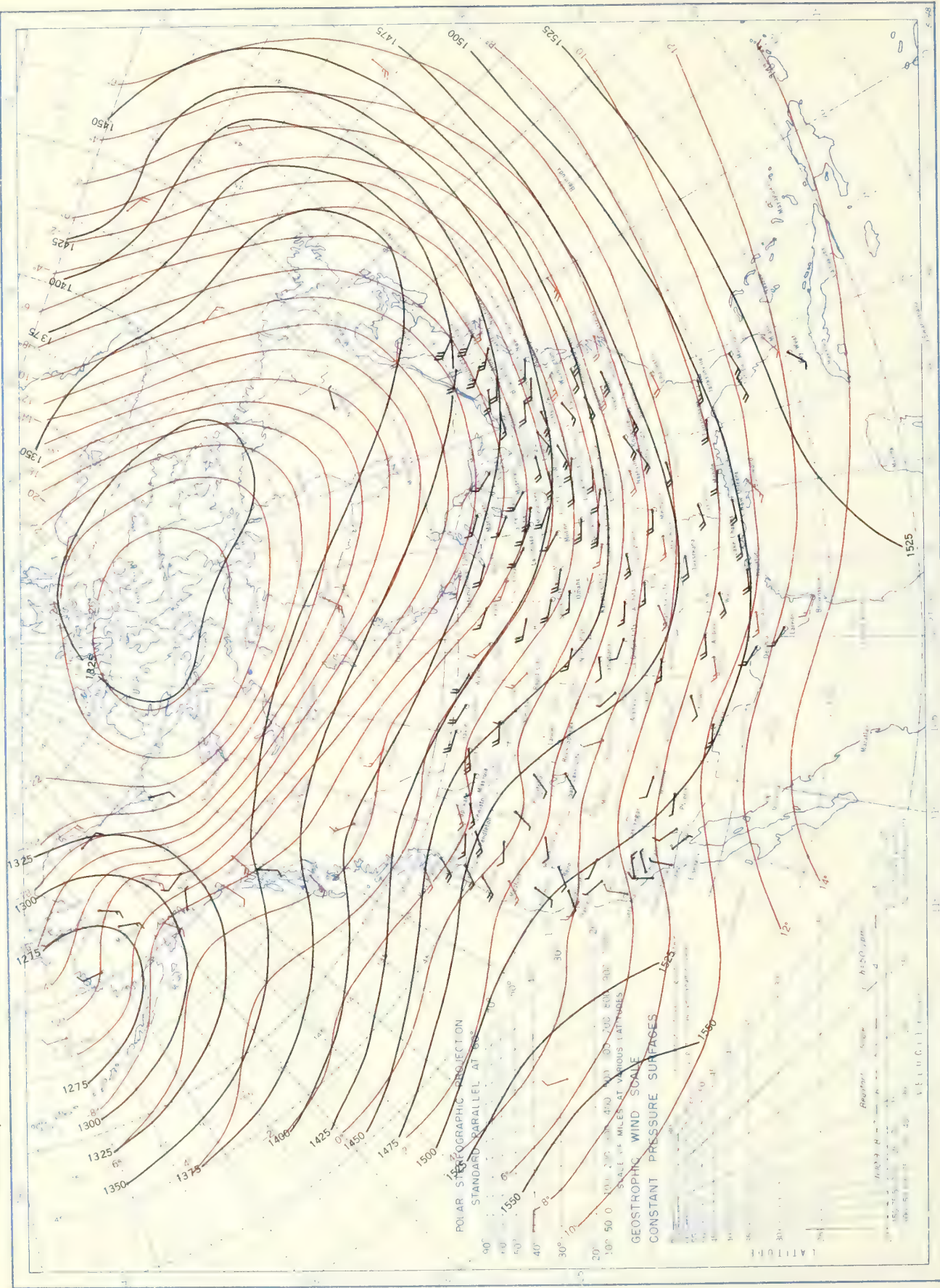
Average Pressure (mb.) from Normal, February 1952.



Average sea level pressures are obtained from the averages of the 7:30 a. m. and 7:30 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.



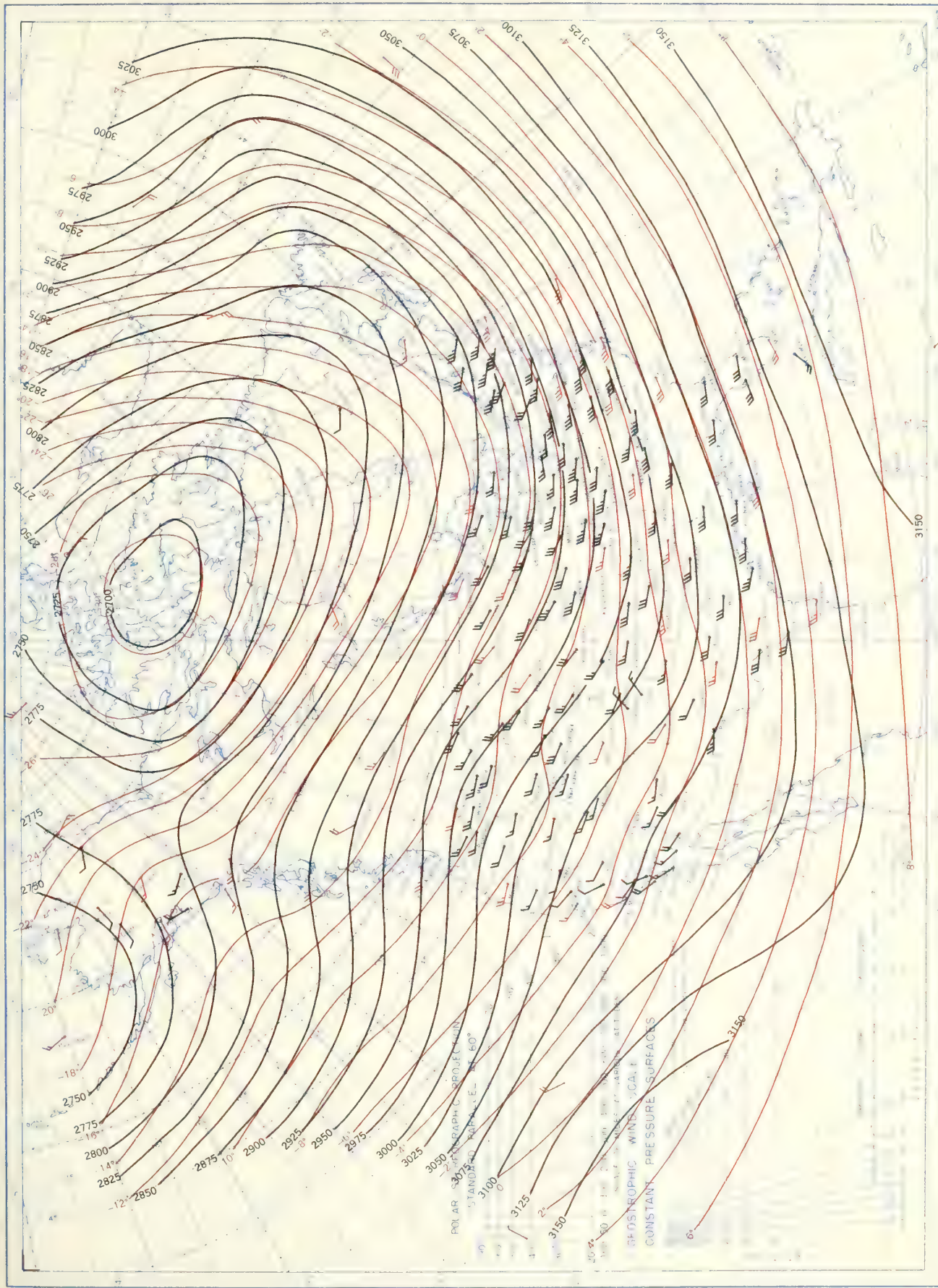
Chart XII. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 850-mb. Pressure Surface, Average Temperature in °C. at 850 mb., and Resultant Winds at 1500 Meters (m.s.l.), February 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.;



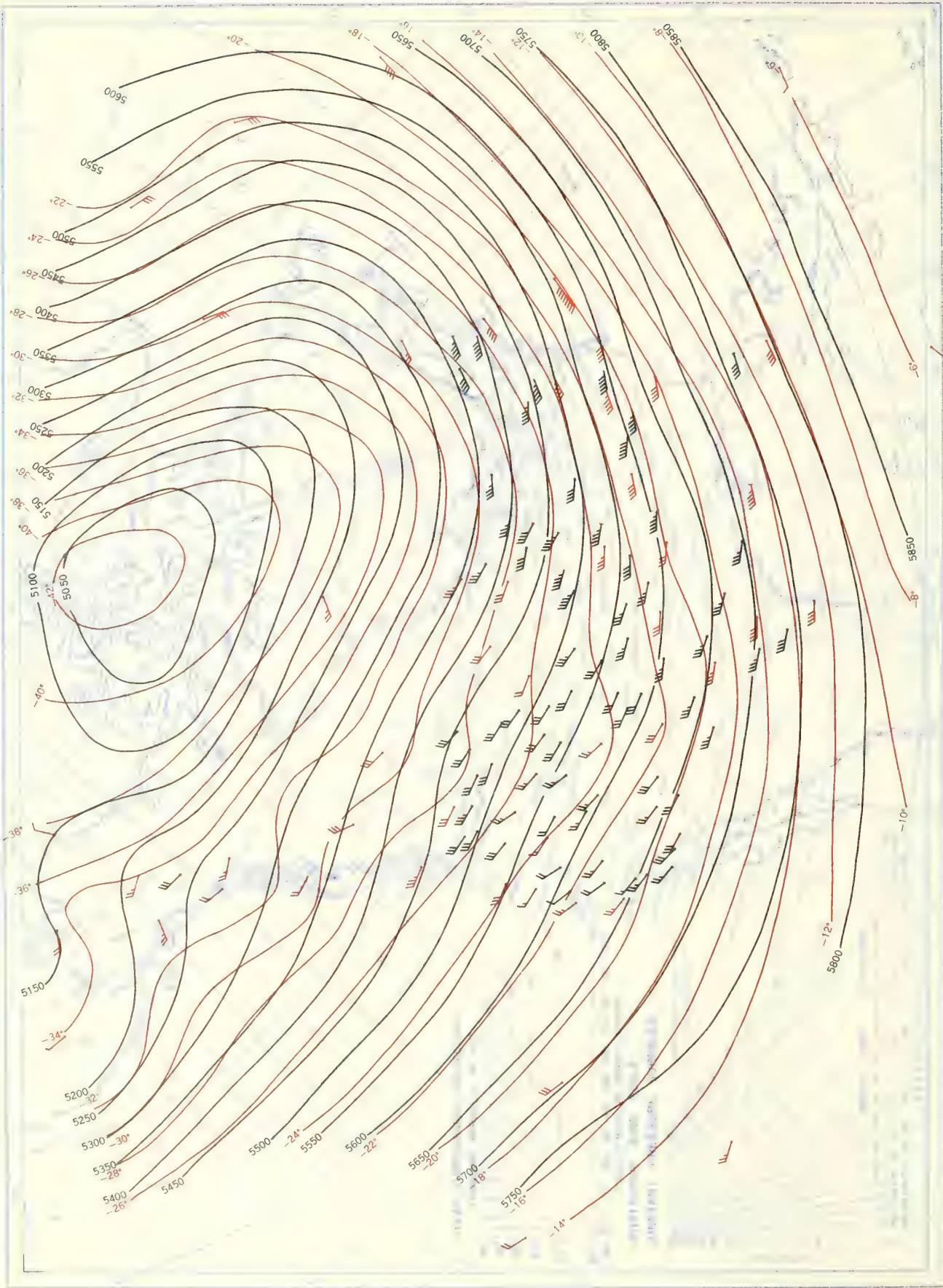
Surface, Average Temperature in °C. at 700 mb., and Resultant Winds at 3000 Meters (m.s.l.), February 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0300 G. M. T.



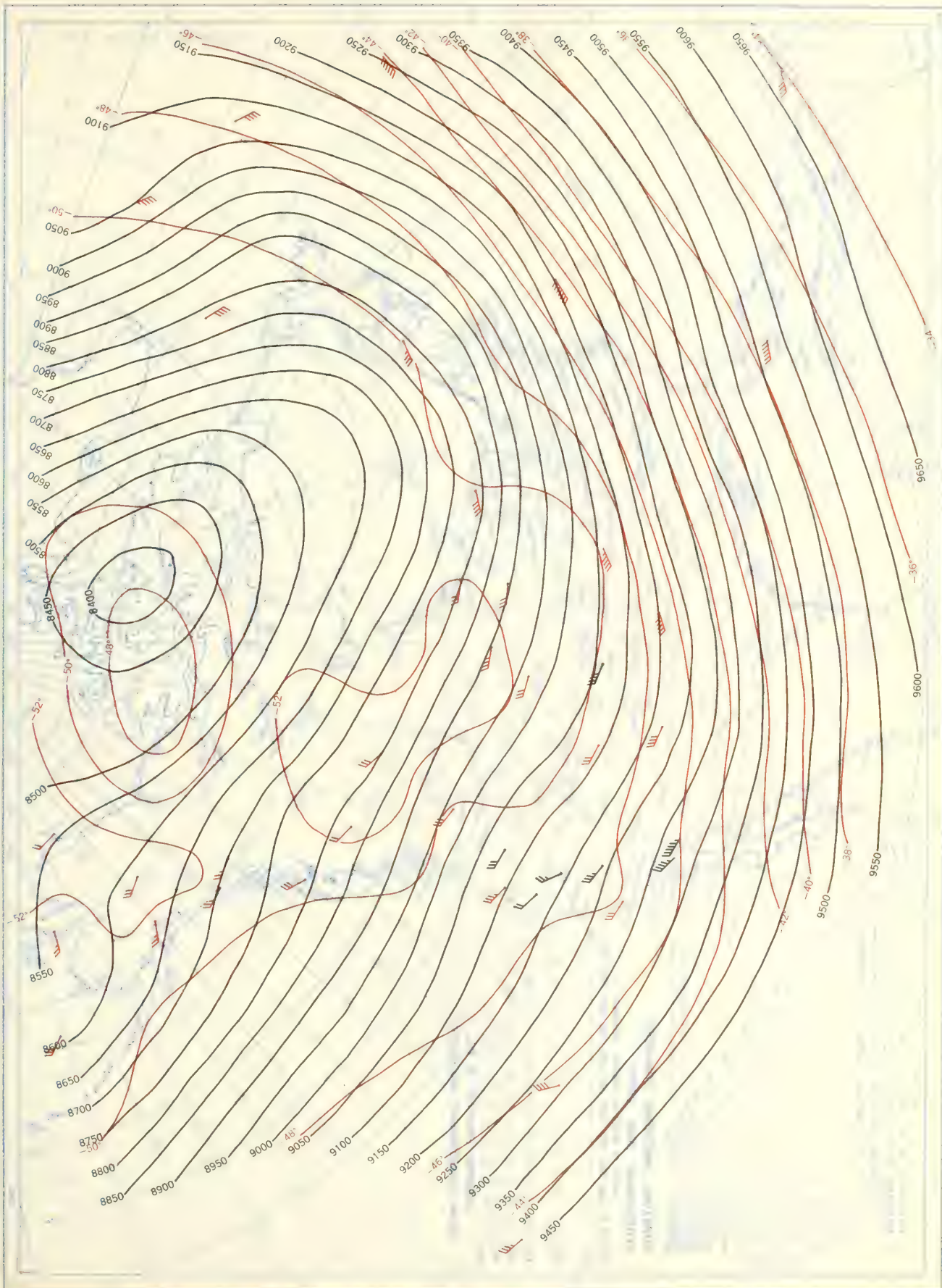
Chart XIV. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 500-mb. Pressure Surface, Average Temperature in °C. at 500 mb., and Resultant Winds at 5000 Meters (m.s.l.), February 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; isotherms in red are based on radiosonde observations at 0300 G. M. T.



Chart 17. Average dynamic height in geopotential meters (1 g.p.m. = 0.30 dynamic meters) at the 500 mb. pressure.  
Surface, Average Temperature in °C. at 300 mb., and Resultant Winds at 10,000 Meters (m.s.l.), February 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T.



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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

MARCH 1952

Volume 3 No. 3





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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

Volume 3 No. 3

MARCH 1952

### GENERAL SUMMARY OF WEATHER CONDITIONS

Even though March 1952 was among the seven coldest Marchs of record since 1893, extreme temperatures generally were well within the limits of previous records. Freezing weather occurred in various southern sections on four different occasions but no serious losses to crops or vegetation were reported. Precipitation was slightly above normal and occurred in most sections with about average frequency and distribution. In the north-central and far western portions of the country precipitation was mostly in the form of snow which was unusually heavy and established a number of March records. Thunderstorm activity was above normal in several south-central sections, but near normal elsewhere. Droughty conditions prevailed in a few southwestern areas, where strong winds caused several duststorms. Minor flooding occurred along many eastern streams. Low-pressure systems of unusual intensity prevailed over the Ohio Valley and Tennessee on the 10th and 11th and over the central Great Plains on the 12th. Heavy local storm damage occurred in the Central Valley of California on the 14th and 15th, and in south-central areas on the 21st and 22d.

The temperature for the United States averaged 39.3°. This was 3.5° below the long-term mean, 0.9° below the average for March 1951, and the lowest March average since 1947. Monthly station averages generally were slightly above normal along the Atlantic Coast and in the Appalachian and Lake Regions. Elsewhere monthly averages were below normal, with slight minus departures in the Mississippi Valley and along the West Coast, and as much as 8° below normal in the far western interior and the central Great Plains. March was colder than the preceding February in the north-central interior, and the coldest on record in a few far western sections. Most New England and north-central interior stations recorded their lowest readings for the month during the first week, the central Atlantic States on the 8th or 9th, the central and eastern Gulf States on the 16th or 17th, Texas and the lower Rocky Mountain Region from the 22d to 24th, and elsewhere on various dates. Record-low temperatures for the season were recorded in Texas on the 22d and 23d with frost occurring south of San Antonio. On the 1st, Bumping Lake, Wash., recorded -14°, which was the lowest March minimum ever recorded in Washington State. Highest monthly temperatures were recorded at most south-central and eastern stations from the 20th to the 23d, and at most other stations from the 27th to the 31st. Monthly maxima equaled or exceeded 90° at a number of stations in central and southeastern Texas and extreme southern Florida.

Precipitation was generally above normal and well distributed through the month. Monthly totals exceeded 200 percent of normal in the far Southwest and 150 percent in a large section of the

upper Mississippi Valley including Iowa, also in most of Kentucky and Tennessee and the central Atlantic coastal districts. There were extreme deficiencies in eastern New Mexico and western and extreme southern Texas, and slight deficiencies at many stations in Louisiana and Mississippi, in upper portions of New York and New England, and from the Dakotas to the Pacific Coast.

Moderate to heavy precipitation fell in California on the 6th and 7th and 14th and 15th, and along the north Pacific Coast on the 23d. Rainfall was moderate to heavy in Arkansas, Tennessee, and the extreme Southeast from the 2d to the 4th; from the Mississippi Valley eastward on the 9th and 11th and from the 21st to the 24th, and in the Atlantic Coastal States and Appalachian Region again on the 17th and 18th.

Monthly totals of precipitation ranged from 2 to 10 inches west of the Cascades and Sierra Nevada, but east of these mountains to the middle Great Plains the areal distribution was very uneven with monthly totals varying from a few hundredths to one-half inch in some sections, and from 1 to over 3 inches in others. From the Mississippi Valley eastward totals generally ranged from 1 to 2 inches in extreme northern and southern areas and over 4 inches in middle sections.

For the United States precipitation averaged 2.89 inches, which was 0.44 inch above the long-term mean and the greatest March average since 1948. No precipitation was recorded during the month at eight stations in Texas, one in Montana and one in New Mexico. The greatest monthly total was 19.83 inches at Palomar Mountain Observatory, Calif., closely followed by 19.75 inches at Coweeta, N. C.

Total snowfall was generally much above normal along and west of the Continental Divide. In California, Nevada, and Utah, snowfall was frequent from the 1st to the 20th with monthly totals and maximum depths at many stations the greatest of record. Alta, Utah, received 163 inches of snow during the month and measured a maximum depth of 156 inches on the 26th. In Utah, snowfall averaged 27.6 inches or 7.5 inches above the previous record in 1948, and the average for Nevada was only a fraction of an inch below the record of 1907. In California a monthly total of 168 inches of snow fell at Grant Grove, and Soda Springs measured a maximum depth of 268 inches on the 26th. In more northern areas most snow fell during the middle and latter parts of the month.

In north-central sections snowfall was also above normal, especially in Iowa and some adjacent areas where some station totals exceeded 300 percent of normal. Very little snow fell south of the Ohio Valley or Kansas. Heavy snows fell in north-central areas on the 3d and 4th, 10th, 12th, and 13th, and from the 21st to 23d. On the 3d and



MARCH 1952

4th, a heavy snow that fell in a belt extending from Kansas and northern Oklahoma to Michigan, ranged up to 15 inches in Kansas, 10 inches in Oklahoma, 12 inches in northern Missouri, 13 inches in Iowa, and 12 inches in Michigan. On the 10th heavy snowfall in northwestern Oklahoma reached depths of 10 inches. Heavy snow occurred again in north-central areas from the 21st to 23d, with blizzard conditions in parts of Kansas, Nebraska, and South Dakota. During this storm as much as 15 inches fell in Kansas, 8 inches in South Dakota, 17 inches in Minnesota, more than a foot in Iowa, and up to 2 feet at Bergland, Michigan. Charles City, Iowa received 11.6 inches of snow on the 22d, the greatest 24-hour amount at that city since March 9, 1909. High winds caused heavy drifting and many roads and highways were blocked.

In the Northeast snowfall was above normal in Pennsylvania, New Jersey, and a few surrounding areas. Little snow fell south of northern Maryland. Up to 12 inches fell in southern Pennsylvania on the 1st and up to 9 inches in New England on the 11th. North Creek, N. Y. reported a monthly maximum depth of 58 inches, and North Bridgeton, Maine, 60 inches.

During the last few days of the month high temperatures melted the snow rapidly, and as the month ended the ground was mostly bare at lower elevations in the Northeast and far West, and snow remaining on the ground in north-central areas was limited to parts of northern Michigan, Wisconsin and Minnesota. The snowpack in the western mountains was unusually deep.

Heaviest storm damage of the month occurred in California and in south-central areas, most of that in California resulting from the 14th to 16th from wind and rain which caused over a million dollars loss in the Central Valley and about \$50,000 in the Los Angeles area. In the south-central interior the principal destruction occurred on the 21st and 22d when a series of tornadoes swept through parts of Arkansas, Tennessee, Missouri, Kentucky, Alabama, and Mississippi leaving over 200 persons dead, 1,200 injured, more than 1,200 homes destroyed, and over 2,000 buildings damaged. This totaled near \$15,000,000. Wind and hail caused over \$500,000 loss in northern Arkansas on the 3d. Snow storms caused some losses of property and livestock in northern and western sections of the country.

While no major floods occurred there was light to moderate flooding along numerous streams in the Northeast and South. Flood damage was estimated to be over \$400,000 in Georgia and over \$200,000 in Alabama, and in Pennsylvania there were unofficial estimates of about \$300,000 damage.

March weather was generally favorable for agriculture. Except in some southwestern areas soil moisture was generally ample, and due to the heavy snowpack in the western mountain ranges the outlook for irrigation water was bright. During the periods of severely cold weather, winter grains were protected by ample snowcover. In the South the citrus crop was in good to excellent condition, and other fruits and commercial vegetables were generally satisfactory.

Unfavorable effects of the weather included some livestock losses resulting in South Dakota, Utah, and Nevada from snow and cold; some local fruit and vegetable losses in the lower Great Plains from freeze or frost; and a higher than usual abandonment of winter grains in the western portions of the lower Great Plains because of drought. At the end of the month winter grains in western Texas and eastern New Mexico were only in poor to fair condition. Cold, wet weather slightly delayed seeding operations in the central interior.

Seeding oats became widespread during the latter part of the month and at the end was well along in Oklahoma and Arkansas and had started as far north as Iowa and the Lake Region. Cotton planting was also slow in getting under way, owing to dryness in southern Texas and cold, wet weather elsewhere. In Texas cotton planting extended to central portions by the end of the month with much up in the Coastal Bend. Cotton planting was under way along the Gulf Coast and beginning locally in extreme eastern sections as far north as southern South Carolina. Much corn was planted in Mississippi, Louisiana, Arkansas, Texas, and Oklahoma, with much of the crop up and being cultivated in southern portions of Texas.

At the end of the month, making maple syrup was in full swing in the Northeast. In the Southeast tobacco beds were generally planted and truck planting was making rapid progress. Strawberry shipments from southern commercial areas were heavy. In the Pacific Northwest planting and orchard work were going forward rapidly.



# CONDENSED CLIMATOLOGICAL SUMMARY

Table 1

MARCH 1952

Section	Temperature								Precipitation							
	Average				Monthly extremes				Average				Monthly extremes			
	Average	Departure from normal	Station	Highest	Date	Station	Lowest	Date	Average	Departure from normal	Station	Greatest	Station	Least		
Alabama	54.2	-1.7	2 Stations	87	*21	Valley Head	21	17	6.75	+0.62	Rock Mills	11.45	Silvomb	2.25		
Arizona	44.5	-5.9	do	90	*30	Maverick	-12	22	2.26	+1.28	Bright Angel AS	7.16	Wupatki NM	.25		
Arkansas	50.1	-2.3	De Queen	89	31	Green Mountain	14	5	5.59	+8.3	Mount Ida	10.08	Louann	2.37		
California	46.4	-5.3	Indio U.S. Date Garden	93	27	Boca	-27	21	4.98	+2.06	Palomar Mtn. Obs.	19.83	Twenty-nine Palms	.07		
Colorado	29.7	-4.7	Holly	79	29	Taylor Park	-32	4	1.38	+0.02	Wolf Creek Pass	9.44	San Luis Lake 3W	.03		
Connecticut	35.8	-0	Waterbury	68	21	Falls Village	0	2	3.88	-1.15	Derby	5.90	Wigwam Resv.	2.75		
Delaware	41.9	-1.7	Georgetown	82	21	Lewes	17	2	5.38	+1.54	Lewes	6.38	Del. City Reedy Pt.	3.91		
Florida	66.9	+1.6	Hypoluxo	95	14	2 Stations	29	17	3.85	+4.8	2 Stations	7.65	Belle Glade Burn Gt	.45		
Georgia	56.3	-6.4	4 Stations	88	*20	Blairsville Exp. Sta.	18	8	7.62	+2.57	Suches	17.49	Folkston	1.98		
Idaho	30.1	-5.6	Lewiston Water Plant	74	27	Island Park Dam	-28	22	1.41	-2.27	Pierce RS	4.89	Porthill	.28		
Illinois	38.9	-2.1	2 Stations	79	*20	Freeport	-10	5	4.38	+1.18	New Burnside	8.58	White Hall	1.83		
Indiana	39.7	-8	Evansville	80	2	2 Stations	5	5	4.58	+8.6	Petersburgh 66 Bridge	8.95	Whiting	2.29		
Iowa	31.8	-3.9	Glenwood 2E	79	29	Cascade	-9	5	3.30	+1.61	Corydon	5.57	Sioux City 4N	1.37		
Kansas	38.6	-5.5	4 Stations	85	*30	Oberlin	-15	4	2.35	+9.4	Ottawa	4.77	Richfield 8WSW	.52		
Kentucky	45.6	-8.3	3 Stations	84	*20	Inez	8	7	2.25	+2.46	Edmonton	11.42	Oneonta Dam 3S	4.36		
Louisiana	58.1	-1.8	Pine Grove Tower	90	25	3 Stations	27	*16	3.58	-1.43	New Orleans-London	6.34	Grand Isle	1.02		
Maine	30.0	+9	Old Town	62	22	Lac Frontiere	-22	2	2.02	-1.41	Hiram 2NW	4.30	Fort Kent 1SE	.55		
Maryland	41.7	-1.1	Nat. Arboretum	88	*21	2 Stations	10	9	4.92	+1.36	Clear Spring	8.63	Chewsville Bridgeport	3.29		
Massachusetts	35.1	-1.1	Provincetown 2WNW	68	26	Tully Dam	-4	2	3.52	-3.4	Rochester	4.98	Chatham	1.28		
Michigan	28.8	-8.4	4 Stations	70	30	2 Stations	-20	6	2.26	+2.22	Harrisville	3.56	2 Stations	.96		
Minnesota	22.3	-3.6	3 Stations	58	*30	do	-27	5	1.50	+3.0	Caledonia	3.63	Red Lake Falls	.13		
Mississippi	55.0	-1.9	Port Gibson	87	20	Water Valley	22	16	4.52	-1.48	Shubuta	8.98	Rolling Fork	2.14		
Missouri	42.0	-2.5	Nevada	84	31	Albany	-6	5	3.98	+7.1	Bloomfield	8.77	Lamar	1.61		
Montana	24.4	-6.4	Bardin	70	28	2 Stations	-30	2	.68	-1.18	Yellowstone Park NE Ent	3.87	Bingham	.00		
Nebraska	31.4	-5.1	2 Stations	80	31	Curtis	-16	4	1.57	+4.3	Nelson	4.57	Arthur	.28		
Nevada	34.3	-7.2	North Las Vegas Dox	82	29	Fish Creek Ranch	-17	14	1.92	+1.01	Glenbrook	8.03	Schurz	.06		
New Hampshire	30.7	+1.7	Windham	63	26	First Conn Lake	-18	2	3.04	-2.22	New London	4.32	Gilmanston	1.07		
New Jersey	39.3	-2	Pleasantville	79	22	3 Stations	4	2	5.42	+1.62	Clayton	7.46	Sussex	3.25		
New Mexico	40.4	-3.9	Jal	84	*30	Gavilan	-21	4	.68	-0.08	Ruidoso	3.60	Pep	.00		
New York	31.8	-5	Rochester WB AP	73	31	2 Stations	-13	2	2.96	-1.12	Cutchogue	8.34	Lawrenceville	.93		
North Carolina	49.6	-4	6 Stations	85	*20	do	7	*8	7.02	+2.77	Coweeta #8	19.75	Elizabethtown Lock 2	3.57		
North Dakota	18.1	-6.6	2 Stations	57	31	do	-31	2	.48	-3.30	Selfridge 11W	1.61	Upham 3N	.05		
Ohio	38.9	-1	do	85	21	Apco Ravena Arsenal	5	2	3.83	+3.36	Ironton	6.15	Willoughby	1.76		
Oklahoma	48.2	-2.6	Waurika	91	31	Beaver	-1	4	2.57	+2.29	Poteau	6.81	Hollis	.44		
Oregon	37.8	-4.0	Pendleton Roundup Pk	78	27	Austin 3S	-17	2	2.89	-0.01	Tidewater Fish Hatchery	17.78	Richland	.04		
Pennsylvania	36.6	-1.1	Artemas Everett	80	21	Bradford 4W	-4	9	4.42	+8.89	Mt. Pocono 2N AP	7.15	Albion	1.41		
Rhode Island	37.1	+5	Providence WB City	61	*26	Kingston	16	2	4.73	+6.8	Block Island	5.01	Prov. WB City	4.41		
South Carolina	54.2	-7	Ridgeland 2SE	87	23	Caesars Head	20	3	7.35	+3.31	Caesars Head	16.65	Walterboro	2.73		
South Dakota	23.3	-8.0	Ardmore 7NW	72	29	Mellette	-25	4	.89	-2.22	Madison	2.20	Thunder Hawk	.14		
Tennessee	48.5	-1.0	5 Stations	84	*20	Gatlinburg 2SW	15	8	6.83	+1.44	Martin Sub Sta	13.29	Johnson City ETSC	2.38		
Texas	55.8	-1.8	McCook	105	21	Pampa	5	23	1.77	.00	Winnboro	5.53	8 Stations	.00		
Utah	31.4	-6.8	2 Stations	75	*28	Scofield Dam	-24	22	2.33	+9.7	Alta	14.51	Hanksville CAA AP	.02		
Vermont	29.5	+7	Wildor	61	27	Lemington	-18	2	2.25	-6.6	Wardsboro	3.66	Lemington	1.35		
Virginia	44.4	-1.2	Walkerton	89	21	Big Meadows	11	16	4.97	+1.34	Meadows of Dan 5SW	11.03	Riverton	2.49		
Washington	39.8	-1.7	Walla Walla 3W	78	27	Bumping Lake	-14	1	2.36	-6.5	Petersons Ranch	12.59	2 Stations	.03		
West Virginia	41.5	-9	Brownsville	90	22	Canaan Valley	15	15	4.38	+4.7	Cabwaylingo State For.	6.64	Moorefield	2.50		
Wisconsin	26.4	-2.1	2 Stations	65	30	Danbury	-27	5	2.29	+6.7	Williams Bay Y. O.	4.61	Merrill	.96		
Wyoming	24.9	-5.0	Cody	70	28	Lake Yellowstone	-30	22	1.07	-0.01	Snake River	3.55	Rozet	.03		
Alaska*	2.4	+1.1	6 Stations	50	*10	Allakaket	-56	9	1.68	-.13	Ketchikan	13.47	Wainwright	.10		
Hawaii**	69.0	-3	Puunene AP	88	*7	Kulani Camp	36	*8	4.85	-1.76	Makahanaloa	22.40	3 Stations	.00		
Puerto Rico	74.2	+9	Utua	95	4	Lares	47	2	2.30	-1.13	Rio Blanco (1800 ft.)	6.75	Potala (3)	.00		

\* Other dates also.

\* December 1951.

\*\* February 1952.



## CLIMATOLOGICAL DATA

MARCH 1952

Table 2

State and station	Elevation (ground)	Pressure			Temperature										Precipitation					Wind				No. of days (sunrise to sunset)									
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max. 90° F. or above	No. of days Min. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days .01 inch or more	With thunderstorms	Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		to sunset		Sky cover, tenths (sunrise to sunset)	Possible sunshine			
																					Total	Max. depth on ground			Direction	Speed	Clear	Partly cloudy			Cloudy		
Fl.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	Max. 90° F. or above	Min. 32° F. or below	°F.	%	In.	In.	In.	.01 inch or more	With thunderstorms	In.	In.	M. p. h.	M. p. h.			0-3	4-7	8-10	0-10	%			
ALABAMA																																	
Birmingham	610	991.2	1016.6	65	41	52.5	-1.3	82	21	28	17	0	6	36	65	5.44	-0.26	1.90	9	5	T	0	10.9	SSE	60	SE	10	8	9	14	6.1	52	
Mobile CO	10	1008.1	1016.2	68	49	58.6	-1.1	80	13	37	16	0	0	—	—	5.69	-1.29	2.06	10	3	T	T	12.4	—	54	S	10	9	17	6.5	50		
Montgomery CO	201	1008.1	1016.2	68	48	58.4	—	78	21	35	16	0	0	46	70	5.57	—	2.04	12	8	0	0	12.1	N	—	—	—	8	8	15	6.4	—	
Montgomery	198	1009.1	1016.7	68	44	55.9	-1.9	82	21	32	17	0	1	43	67	5.51	+4.55	2.71	9	4	T	T	8.0	NNW	60	SW	10	11	3	17	6.1	66	
ARIZONA																																	
Flagstaff	6993	—	—	40	18	20.6	—	53	28	-1	22	0	31	—	—	3.03	+1.12	1.46	8	0	44.4	28	—	—	—	—	—	—	10	7	14	6.0	—
Payson CO	5000	878.1	1013.2	51	28	39.7	—	67	26	12	3	0	24	—	—	4.83	+3.01	1.80	9	0	15.1	6	—	—	—	—	—	—	10	7	14	5.7	—
Phoenix CO	1083	—	—	68	44	55.9	-4.8	82	29	36	22	0	0	—	—	1.87	+1.19	1.50	7	2	T	T	7.4	—	—	31	W	8	—	—	—	—	
Phoenix	1108	973.9	1013.4	68	43	55.6	—	82	29	35	3	0	0	38	55	2.20	+1.52	.63	7	1	T	T	5.8	SE	—	—	—	16	4	11	4.5	—	
Prescott	5014	842.9	1013.3	50	26	38.2	—	68	29	12	14	0	27	23	58	2.57	+1.01	.85	8	0	18.8	5	12.7	SW	36	SW	1	9	8	14	5.6	71	
Tucson	2558	923.8	1012.8	66	40	52.7	-5.0	80	31	32	23	0	2	28	46	2.26	+1.52	1.19	7	1	3.4	2	7.7	SE	36	NW	11	18	4	9	3.9	81	
Winslow	4880	846.9	1011.4	53	28	40.3	-5.0	69	31	16	23	0	25	21	51	.85	+4.37	3.6	7	0	3.7	2	11.5	SW	*38	W	17	11	7	13	5.3	—	
Yuma	203	1008.5	1013.5	73	47	60.2	—	89	26	39	3	0	0	32	40	.62	+3.30	.24	6	0	.0	0	9.4	W	35	NW	11	16	11	4	3.4	90	
ARKANSAS																																	
Fort Smith	458	997.6	1014.4	62	37	49.5	-3.1	85	20	26	24	0	10	34	63	5.16	+2.15	2.68	10	6	T	0	10.5	NE	35	W	18	13	8	10	4.7	59	
Little Rock	257	1001.7	1015.0	61	41	51.1	-1.9	85	20	28	5	0	3	38	66	5.61	+9.99	1.92	11	4	T	0	11.4	SSW	43	W	21	9	11	11	5.6	60	
Texarkana	361	1001.4	1015.0	64	43	53.4	-2.3	83	20	30	23	0	4	39	65	6.13	+1.27	2.60	13	5	T	T	11.0	NE	*57	ESE	17	11	6	14	5.7	68	
CALIFORNIA																																	
Bakersfield	489	998.0	1016.2	63	42	52.2	-4.6	82	27	33	21	0	0	39	66	2.39	+1.33	.68	13	1	T	T	5.8	NNW	*30	ESE	14	8	4	19	6.4	—	
Beaumont CO	2589	—	—	55	36	45.5	—	77	26	28	21	0	11	—	—	5.79	—	1.81	10	0	.6	1	—	—	—	—	—	—	6	19	6.8	—	
Bishop	4108	870.0	1012.3	53	28	40.6	—	73	20	13	8	0	25	—	—	2.05	—	1.24	7	0	14.5	10	—	—	—	—	—	—	11	6	14	5.7	—
Blue Canyon	5280	834.4	1014.9	38	25	31.5	—	56	27	12	20	0	23	—	—	17.38	—	4.03	17	1	146.8	155	—	—	—	—	—	—	7	3	21	7.0	—
Burbank	699	987.8	1015.4	62	43	52.7	—	83	27	36	3	0	0	36	61	7.23	—	3.74	12	2	.1	T	6.2	S	*30	W	1	11	6	14	5.9	—	
Eureka CO	43	1015.6	1018.0	51	40	45.2	-3.1	56	8	32	13	0	1	—	—	3.78	-1.45	1.06	17	1	T	T	8.7	—	31	SE	14	4	23	8.1	1.06	17	
Fresno	331	1004.4	1016.4	60	40	50.1	-4.3	82	27	30	21	0	4	41	74	3.57	+1.99	1.14	10	1	T	T	7.9	NW	31	SE	19	9	16	6.5	75	75	
Los Angeles CO	312	—	—	64	47	55.3	-2.2	86	27	40	9	0	0	—	—	6.14	+3.36	3.00	13	2	T	T	8.0	—	38	N	21	9	9	13	5.9	70	
Los Angeles	99	1011.5	1015.1	62	46	54.1	—	87	27	38	9	0	0	42	67	4.33	—	1.89	11	1	T	0	8.7	W	—	—	—	—	—	—	—	—	
Mt. Shasta CO	3543	889.6	1015.1	46	28	37.4	-3.4	69	27	14	13	0	24	—	—	5.05	+4.8	1.70	16	0	67.0	28	—	—	—	—	—	—	—	—	—	—	—
Oakland	1	1016.1	1016.4	59	43	51.2	-1.2	85	25	36	13	0	0	40	68	4.46	+1.90	1.63	9	1	T	T	7.9	—	—	—	—	—	—	—	—	—	—
Red Bluff	341	1002.4	1015.1	60	41	50.1	-3.5	83	25	31	20	0	2	35	59	4.31	+1.06	2.01	12	2	T	T	8.6	NNW	42	SE	18	9	7	15	6.2	65	
Sacramento	17	1014.6	1015.4	61	40	50.4	-3.9	81	25	33	20	0	0	40	71	4.13	+1.56	1.73	12	1	T	T	12.9	NNW	66	S	14	8	8	15	6.1	56	
Sandberg CO	4517	859.1	1014.6	43	30	36.7	—	66	26	21	8	0	23	28	76	2.59	—	1.28	11	0	45.0	24	21.7	NW	—	—	—	—	—	—	—	—	
San Diego	19	1012.9	1015.9	63	49	55.9	-1.1	82	27	42	3	0	0	43	64	4.97	+3.25	2.40	14	0	T	0	8.0	NE	45	S	7	7	13	11	5.9	61	
San Francisco CO	52	—	—	57	46	51.7	-2.5	83	25	41	20	0	—	—	—	4.90	+1.76	1.99	10	1	T	T	9.4	—	40	SE	14	7	12	12	6.0	68	
San Francisco	1	1015.6	1016.3	58	44	51.0	—	84	25	37	5	0	0	42	73	4.62	+1.72	1.77	11	1	T	0	12.8	NNW	42	NW	1	8	12	11	5.5	—	
Santa Catalina	1568	958.0	1015.3	55	44	49.5	—	75	28	13	0	0	—	—	—	5.90	—	2.32	13	0	.0	0	—	—	—	—	—	—	—	—	—	—	
Santa Maria	231	1008.1	1016.9	60	41	50.3	—	81	25	32	3	0	1	42	75	4.38	+1.68	1.87	15	1	T	0	8.3	W	*42	SE	14	9	9	13	5.9	—	
COLORADO																																	
Alamosa	7534	764.0	1012.3	43	12	27.3	—	58	29	-4	22	0	31	—	—	.07	—	.03	4	0	1.6	1	—	—	—	—	—	—	11	10	10	5.0	—
Colorado Springs	6175	803.6	1012.5	44	20	32.1	—	64	29	1	23	0	28	13	51	1.13	+4.43	.41	10	0	15.1	4	12.6	SSE	*50	NNW	12	9	8	14	5.5	—	
Denver	5292	831.0	1011.2	46	21	33.8	-4.0	64	30	-3	22	0	29	17	56	2.12	+9.99	1.43	10	0	25.2	13	9.0	S	53	NW	12	9	10	12	6.0	68	
Grand Junction	4849	854.0	1011.9	46	27	36.4	-7.2	64	16	10	23	0	26	24	63	.70	-0.06	.18	13	1	6.9	1	8.6	ESE	43	S	16	3	10	18	7.5	4	
Pueblo	4799	850.3	1010.7	62	24	37.7	-3.1	73	29	7	23	0	26	29	53	1.09	+0.50	.63	7	0	12.1	6	9.7	ENE	61	NW	12	9	10	12	5.6	5	
CONNECTICUT																																	
Bridgeport	7	1014.9	1015.4	45	31	37.9	+1.1	57	11	17	2	0	19	28	69	3.76	+1.16	1.02	12	1	1.8	2	10.7	N	35	S	11	7	7	17	6.5	—	
Hartford	15	1009.1	1015.2	45	29	37.3	+2.3	63	21	11	2	0	22	26	68	3.36	-.54	1.04	13	1	4.2	3	9.3	NNE	57	SE	11	7	7	17	6.8	51	
New Haven	6	1010.8	1014.9	44	31	37.3	+2.8	57	21	12	2	0	19	—	—	4.53	+1.74	1.17	12	1	5.7	2	8.6	—	38	SE	11	7	7	17	6.7	50	



## CLIMATOLOGICAL DATA

Table 2-Continued

MARCH 1952

[illegible]

See footnotes at end of table.



## CLIMATOLOGICAL DATA

MARCH 1952

Table 2--Continued

State and station	Elevation (ground)	Pressure		Temperature										Precipitation										Wind				No. of days					
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		to sunset						
												Max. 90° F or above	Min. 32° F or below						In.	In.	In.	In.			In.	In.	M. p. h.	M. p. h.	Direction	Speed	Clear	Partly cloudy	
																																	0-3
NEVADA																																	
Elko	5075	840.2	1014.5	37	16	26.6	-----	50	29	-9	3	0	30	20	73	1.39	-----	0.31	12	0	13.3	7	7.8	NW	41	WNW	18	4	8	19	7.5	--	
Ely	6257	803.3	1014.9	35	15	23.8	-10.1	52	30	-13	3	0	31	--	--	2.40	+1.21	.77	18	0	23.5	20	12.4	--	41	SE	10	4	10	17	7.3	55	
Las Vegas	2162	945.6	1011.5	62	39	50.4	-3.4	80	29	27	3	0	4	24	40	1.50	+1.16	1.14	7	1	T	0	9.5	SW	33	WSW	19	11	10	10	5.1	73	
Reno	4397	858.1	1013.8	46	22	34.0	-6.0	65	28	1	21	0	28	23	65	2.02	+1.21	.99	12	0	29.0	13	5.4	NNW	36	SW	18	10	4	17	6.5	59	
Winnemucca	4299	864.2	1014.3	43	22	32.5	-7.5	64	28	0	13	0	28	25	73	1.66	+7.0	.43	14	0	23.4	9	8.9	---	30	E	8	5	5	21	7.6	61	
NEW HAMPSHIRE																																	
Concord	339	1003.7	1014.7	40	24	31.9	+2.8	60	26	5	2	0	30	23	73	3.13	+1.10	1.12	9	1	12.7	23	7.0	NW	34	NW	12	7	5	19	7.0	47	
Mt. Washington	6262	796.5	-----	19	6	12.4	+9	33	4	-14	15	0	31	--	88	3.43	-3.77	1.02	19	0	31.7	24	32.3	NW	1149	W	12	2	5	24	8.4	35	
NEW JERSEY																																	
Atlantic City CO	8	1014.6	1016.6	47	35	40.9	+2.3	63	21	25	2	0	11	--	--	5.48	+1.88	1.16	12	3	7.7	8	16.7	---	65	SE	11	6	9	16	6.6	58	
Newark	11	1014.2	1015.4	47	33	39.9	+3	67	21	23	2	0	16	29	68	4.94	+1.04	1.53	11	2	6.0	5	11.6	NW	40	NW	11	5	6	20	7.2	--	
Trenton CO	56	1008.1	1015.2	47	33	40.1	+1.0	68	21	21	2	0	15	--	--	4.52	+1.12	1.42	9	3	7.3	7	11.0	---	38	SE	11	7	8	16	6.8	54	
NEW MEXICO																																	
Albuquerque	5310	843.2	1009.8	55	30	42.3	-3.6	70	31	18	22	0	20	18	41	.59	+1.24	.29	5	0	2.0	2	10.9	S	47	S	16	10	13	8	4.8	68	
Clayton	4969	838.5	1009.7	53	24	38.4	-4.2	73	21	10	23	0	28	21	57	.46	-.23	.18	6	1	2.7	1	---	---	---	---	---	---	---	---	---	---	
Raton	6379	797.5	1009.0	50	21	35.1	-----	66	29	4	23	0	30	--	--	.62	-1.14	.24	8	2	5.9	2	---	---	---	---	---	---	---	---	---	---	
Roswell	3611	888.9	1010.2	65	32	48.3	-3.0	80	31	15	23	0	16	19	37	.13	-.61	.05	5	1	T	T	14.1	SSE	51	W	9	16	10	5	3.7	82	
NEW YORK																																	
Albany	277	1011.9	1015.3	40	25	32.5	+2.7	63	26	0	2	0	27	24	72	1.90	-.72	.81	9	2	9.7	5	9.4	WNW	45	NW	11	6	7	18	7.2	42	
Bear Mountain	1300	-----	-----	40	27	33.8	-----	63	21	15	16	0	24	--	--	5.46	-----	2.83	13	1	11.5	5	---	---	---	---	---	---	---	---	---	---	
Binghamton	1601	954.3	1014.8	37	24	30.3	-----	61	31	10	16	0	27	23	76	3.05	-----	1.14	15	1	14.5	5	13.4	NW	54	NW	11	0	9	22	8.3	25	
Buffalo	693	986.5	1015.6	40	27	33.5	+2.2	68	31	15	6	0	26	26	78	2.51	-.06	.72	15	0	7.4	3	14.1	SW	42	SW	26	0	9	22	8.4	36	
New York CO	10	1003.1	-----	47	34	40.1	+2.4	64	21	24	16	0	13	--	--	4.21	+5.7	1.00	11	3	6.2	5	15.3	---	65	NW	11	6	8	17	6.7	44	
New York	10	1013.5	1015.3	46	35	40.5	-----	61	11	24	16	0	11	29	68	5.30	-----	1.40	11	2	6.6	4	14.9	NW	56	NW	11	6	6	19	7.1	--	
Oswego CO	292	1003.4	1016.3	38	28	33.1	+2.0	66	31	16	16	0	24	--	--	2.52	-.06	1.05	16	1	8.3	8	10.2	---	31	SE	11	2	8	21	7.8	33	
Rochester	543	995.9	1015.7	40	26	33.3	+1.5	73	21	16	16	0	25	26	77	2.70	-.06	.83	13	0	5.9	4	12.0	WNW	37	SW	11	1	11	19	7.9	41	
Schenectady	-----	-----	-----	40	27	33.3	+2.0	60	26	7	2	0	27	--	--	2.33	-.20	.87	12	1	11.0	7	---	---	---	---	---	---	---	---	---	---	
Syracuse	399	993.6	1016.1	40	27	33.2	+3.5	69	31	16	16	0	28	24	73	2.39	-.92	.93	20	0	11.6	4	10.9	WNW	43	SE	11	1	9	21	8.5	29	
NORTH CAROLINA																																	
Asheville CO	2203	-----	-----	58	35	46.0	+1.1	80	20	24	8	0	13	--	--	7.15	+3.18	2.51	11	3	1.2	1	---	---	---	---	---	---	---	---	---	---	
Asheville	2093	941.1	1015.8	-----	-----	-----	-----	81	-----	-----	-----	0	--	33	68	-----	-----	-----	-----	-----	-----	-----	8.3	NNW	---	SE	10	14	7	10	4.9	68	
Charlotte	753	987.8	1015.5	62	40	50.6	+2.0	81	20	26	8	0	6	37	65	8.62	+4.45	3.64	10	4	T	0	7.0	S	41	SE	10	12	9	10	5.2	69	
Greensboro	891	984.1	1016.5	59	36	47.6	+3.5	80	20	21	8	0	13	35	68	7.21	+2.85	2.30	11	1	1.4	T	9.8	NE	37	SE	11	13	6	12	5.3	65	
Hatteras	4	1015.6	1016.0	56	45	50.6	-----	74	20	33	15	0	0	45	82	4.58	+3.33	1.36	11	2	T	0	13.8	N	42	SE	11	8	10	13	6.0	55	
Raleigh CO	400	-----	-----	60	40	49.9	-.3	81	20	27	8	0	8	--	--	6.96	+3.09	3.08	12	2	.8	T	---	---	---	---	---	---	---	---	---	---	---
Raleigh	438	1000.0	1016.1	60	38	49.0	-----	81	20	25	8	0	8	37	69	6.21	-----	2.51	11	3	1.2	T	8.8	SW	---	---	---	---	---	---	---	---	
Wilmington	30	1014.9	1016.3	64	44	54.2	+9	81	21	30	8	0	5	44	72	5.06	+1.89	1.60	10	4	4	0	11.8	SSW	52	S	11	12	7	12	5.1	65	
Winston-Salem	967	980.7	1016.0	59	37	48.2	-.7	79	20	24	8	0	9	33	59	7.32	+3.30	2.68	12	2	1.7	T	9.9	NNE	---	---	---	---	---	---	---	---	---
NORTH DAKOTA																																	
Bismarck	1653	955.0	1017.8	27	8	17.4	-4.5	46	31	-27	4	0	31	14	84	.49	-.40	.15	11	0	6.1	13	8.5	E	34	NW	22	6	5	20	7.4	48	
Devils Lake CO	1471	962.1	-----	28	12	19.5	-.3	54	31	-18	4	0	31	--	--	.70	-.08	.50	11	0	10.4	6	7.8	---	22	NE	12	4	8	19	7.3	48	
Fargo	895	984.1	1017.6	28	13	20.4	-2.3	44	31	-22	4	0	31	15	80	.68	-.33	.27	9	0	9.9	12	11.7	N	34	N	22	5	8	18	7.4	50	
Williston CO	1877	947.2	1017.3	26	10	18.0	-4.9	48	28	-26	2	0	30	12	77	.42	-.27	.29	9	0	6.0	13	6.6	---	23	E	11	3	7	21	7.5	60	
OHIO																																	
Akron	1210	963.8	1016.3	44	26	35.2	-1.2	64	30	12	2	0	25	28	79	3.44	+4.43	1.44	17	2	11.3	4	11.2	NW	---	---	---	---	---	---	---	---	
Cincinnati Obs.	761	-----	-----	52	34	43.3	+2.4	75	30	18	5	0	15	30	66	4.35	+1.06	2.18	13	1	1.2	1	---	---	---	---	---	---	---	---	---	---	
Cincinnati	871	982.4	1015.5	51	34	42.3	-----	73	21	18	5	0	15	30	66	5.17	-----	2.03	13	3	1.0	1	11.5	SW	---	---	---	---	---	---	---	---	
Cleveland CO	663	-----	-----	43	31	37.2	+2.6	67	31	23	2	0	22	--	--	2.63	-.08	1.03	13	0	---	---	---	---	---	---	---	---	---	---	---	---	
Cleveland	787	984.1	1016.0	45	29	36.7	+2.2	67	31	16	2	0	25	29	77	3.29	+5.08	1.40	16	1	9.0	2	12.4	SSE	35	W	23	3	6	22	7.9	33	
Columbus CO	724	-----	-----	48	33	40.7	+1.8	68	30	23	5	0	15	--	--	4.01	+5.1	1.70	12	1	1.6	2	---	---	---	---	---	---	---	---	---	---	
Columbus	815	984.4	1015.9	49	31	39.9	+2.3	69	30	19	8	0	22	30	71	3.95	+1.14	1.86	12	1	1.3	2	10.1	E	46	NW	11	2	10	19	7.6	33	
Dayton	1002	978.3	1016.0	48	31	39.5	+8	70	30	18	5	0	20	30	72	5.08	+1.39	1.86	13	2	2.0	1	12.8	SE	50	W	4	5	6	20	7.5	43	
Sandusky CO	603	991.9	-----	43	31	37.0	+1.9	68	30	23	8	0	22	--	--	4.12	+1.41	2.63	10	2	2.6	2	9.2	---	---	---	---	---	---	---	---	---	
Poland	621	991.2	1015.8	44	28	35.9	-1.4	70	30	17	7	0	25	28	75	3.36	+8.1	1.44	13	1	4.8	1	13.2	ENE	40	SW	4	4	10	17	7.4	44	
Youngstown	1178	971.6	1015.8	43	26	34.6	-2.4	66	31	11	2	0	25	27	76	2.71	+0.1	.79	15	2	8.1	4	11.3	WNW	37	W	4	2	8	21	8.1	---	
OKLAHOMA																																	
Oklahoma City	1254	966.1	1013.5	58	36	47.3	-2.7	80	31	18	4	0	9	34	67	2.42	+4.4	.72	10	6	T	T	16.5	SSE	43	SW	12	13	8	10	5.0	70	
Tulsa	672	989.2	1013.2	58	36	46.9	-2.5	86	31																								



## CLIMATOLOGICAL DATA

Table 2-Continued

MARCH 1952

State and station	Elevation (ground)	Pressure			Temperature										Precipitation										Wind				No. of days (sunrise to sunset)						
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max 90° F or above Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of lach or more With thunderstorms	Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine				
																			Total	Max depth on ground			Speed	Direction											
																																Miles per hour	Miles per hour		
																																		Miles per hour	Miles per hour
Fl.	Mb.	Mb.	°F	°F	°F	°F	°F	°F	°F	%	In.	In.	In.	In.	In.	In.	In.	In.	p. h.	p. h.	O-3	4-7	8-10	O-10	%										
SOUTH CAROLINA																																			
Charleston CO	B	1014.2	-----	66	51	58.5	+2.3	78	21	32	9	0	0	35	-69	3.86	+0.84	1.38	11	3	0	0	10.4	--	45	S 11	12	5	14	5.3	62				
Charleston	4	1014.9	1016.5	69	46	57.6	+1.3	82	21	38	9	0	2	35	-69	4.08	+1.06	1.25	11	3	0	0	9.1	SW	--	--	12	4	15	5.6	--				
Columbia CO	332	1003.4	-----	66	45	55.2	-.0	81	20	31	9	0	1	41	-68	6.27	+2.86	1.75	11	4	0	0	8.8	--	38	S 11	12	7	12	5.2	65				
Columbia	217	1007.8	1016.2	66	41	53.8	-.0	83	20	29	9	0	1	41	-68	7.00	-1.98	1.98	4	0	0	0	8.1	W	--	--	12	8	11	5.2	--				
Florence	146	1010.8	-----	66	43	54.4	-.0	83	20	31	16	0	0	3	63	5.47	-----	1.80	12	3	0	0	8.1	W	--	--	12	5	14	5.6	--				
Greenville	1006	978.0	1015.3	61	41	50.9	+1.0	78	20	29	8	0	0	3	36	63	11.99	+6.84	2.67	12	3	0	0	9.5	NNE	56	S 11	14	5	12	5.1	70			
Spartanburg	801	985.8	-----	62	40	50.9	+1.4	74	13	28	8	0	2	35	-69	10.33	+5.75	2.83	12	4	0	0	9.5	NNE	56	S 11	14	5	12	5.1	70				
SOUTH DAKOTA																																			
Huron	1282	967.2	1016.1	30	15	22.2	-6.7	49	29	-18	4	0	0	30	19	84	.70	-.21	.37	9	0	8.2	7	11.6	NW	40	NW	23	3	7	21	7.9	52		
Rapid City	3215	897.1	1014.9	35	17	25.8	-5.8	61	28	-5	3	0	0	30	18	76	.81	-.16	.28	10	0	7.1	3	11.8	NNW	43	NNW	22	4	10	17	7.1	48		
Sioux Falls	1420	962.4	1015.9	34	18	25.5	-6.9	59	30	-9	4	0	0	31	20	80	1.70	+1.39	.64	12	0	14.9	9	11.1	NNE	*34	N 22	6	3	22	7.8	--			
TENNESSEE																																			
Bristol	1519	971.9	1016.6	57	34	45.6	+1.8	75	20	18	8	0	14	32	64	3.58	-.23	1.10	11	0	T	0	8.4	WSW	*42	WSW	4	11	8	12	5.6	--			
Chattanooga	670	988.2	1016.5	62	38	50.1	+1.0	80	20	28	6	0	8	36	63	8.57	+2.79	3.29	9	5	T	0	8.5	SSW	43	SW	11	10	9	12	5.8	59			
Knoxville	949	980.4	1016.7	60	38	49.1	+1.6	78	20	27	5	0	8	35	63	3.87	-1.18	1.35	10	2	T	0	8.5	NE	47	SW	10	11	8	12	5.5	55			
Memphis CO	271	-----	-----	59	43	50.6	-1.7	77	20	27	5	0	3	-----	5.71	+4.5	1.91	11	6	0	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----			
Memphis	263	1000.7	1016.6	60	41	50.4	-1.5	78	20	28	5	0	4	38	65	5.75	+3.5	1.64	12	6	T	0	12.8	S	54	S 22	10	7	14	6.0	53				
Nashville	577	995.6	1016.3	59	38	48.4	-1.8	80	20	23	5	0	9	35	65	9.87	+4.76	4.64	9	4	T	0	8.5	S	40	W 13	10	9	12	5.9	53				
TEXAS																																			
Abilene	1752	950.9	1012.1	68	41	54.5	-7.7	88	31	23	23	0	5	29	47	1.05	-.24	.54	5	4	T	0	13.1	SSE	61	NW	21	12	10	9	5.0	67			
Amarillo	3590	883.8	1010.3	59	31	45.0	-3.0	80	30	13	23	0	18	24	54	.56	-.15	.28	5	1	.2	0	15.6	SSE	66	W 12	15	8	8	4.4	97				
Astoria	535	992.6	1014.4	70	48	58.8	-1.9	91	21	30	24	1	1	43	63	2.25	-.05	.80	12	3	0	0	10.2	NE	38	S 17	8	10	13	5.9	57				
Big Spring	2533	922.8	1011.2	67	41	54.2	-1.4	86	31	24	23	0	5	27	44	.33	-.55	.32	2	1	T	0	18.4	S	--	--	13	9	9	5.0	--				
Brownsville	16	1009.1	1012.0	78	61	69.8	+1.6	87	21	41	24	0	0	39	75	.16	-1.41	.11	3	0	0	0	14.8	SE	40	NW	10	2	7	22	8.1	36			
Corpus Christi	40	1012.5	1013.5	76	57	66.6	+3.6	90	21	39	24	0	0	48	64	.78	-.82	.55	4	0	0	0	15.5	E	49	NW	10	6	11	14	6.2	43			
Dallas	487	995.3	1013.9	67	44	55.5	-1.9	90	31	29	23	1	3	37	57	1.74	-1.14	.67	8	5	0	0	13.9	SSE	49	SW	3	14	7	10	5.1	77			
Del Rio	957	978.0	1012.3	73	50	61.8	-1.7	91	21	31	24	3	1	38	51	.38	-.34	.24	6	0	0	0	10.3	SE	38	SE	1	10	5	16	6.1	63			
El Paso	3920	877.8	1010.4	64	38	50.7	-4.2	77	16	26	22	0	3	23	39	.27	+5.6	.82	2	0	T	0	13.2	W	54	W 17	19	4	8	3.5	84				
Fort Worth	688	989.5	1014.1	68	44	55.5	-1.2	92	31	28	23	1	3	35	55	1.39	-.93	.44	8	5	0	0	15.5	SE	*50	W 3	15	7	9	4.5	--				
Galveston CO	7	-----	-----	67	56	61.5	-9.7	74	20	42	23	0	0	-----	4.49	+1.81	3.76	6	5	0	0	14.0	--	50	SE	2	--	--	--	--	58				
Galveston	7	1014.2	1014.8	67	55	61.2	-1.2	75	21	43	23	0	0	54	82	4.43	+1.75	3.77	6	5	0	0	12.9	SE	--	--	--	8	9	14	6.4	--			
Houston	41	1009.5	-----	70	51	60.8	-2.5	81	19	39	23	0	0	-----	1.66	-1.64	.74	9	3	T	0	11.6	--	47	NW	18	8	11	12	6.2	53				
Houston	50	1012.2	1014.9	71	50	60.1	-2.2	82	19	36	24	0	0	48	64	2.16	-.75	.93	8	0	0	0	15.0	SE	--	--	--	--	--	--	--	53			
Lubbock	3238	986.7	1011.8	79	57	68.2	+4.0	104	21	41	24	3	0	59	49	.40	-.48	.23	4	0	0	0	14.1	SE	*30	WNW	10	7	4	20	6.9	--			
Lubbock	3238	987.7	1010.6	63	32	47.9	-3.3	80	31	13	23	0	16	24	47	.04	-.86	.03	2	0	T	0	17.9	S	*56	WNW	12	16	9	6	4.0	--			
Plainsville CO	491	996.3	-----	66	46	56.4	-2.7	84	19	32	23	1	0	0	-----	3.94	+4.6	1.74	10	5	T	0	9.2	--	45	S	30	11	9	11	5.4	60			
Port Arthur CO	5	1013.5	-----	68	53	60.4	-1.5	76	20	39	24	0	0	-----	5.46	+2.20	3.62	8	4	0	0	14.3	--	53	SE	2	6	14	11	6.1	58				
Port Arthur	5	1013.9	1015.0	70	48	59.0	-----	79	19	34	24	0	0	49	78	4.50	-----	2.00	9	4	0	0	11.5	SE	--	--	--	7	12	12	6.1	--			
San Angelo	1903	945.1	1012.3	69	42	55.7	-1.3	88	31	24	23	0	4	32	50	.68	-.30	.24	5	4	T	0	10.2	S	*38	WNW	10	12	10	9	5.0	--			
San Antonio	782	988.5	1013.5	72	50	60.7	-2.1	92	21	28	24	1	1	41	57	2.34	+3.50	1.32	9	3	T	0	10.9	SE	*50	NW	17	8	6	17	6.5	63			
Victoria	109	1009.1	1013.8	74	52	63.1	-1.1	82	21	36	24	0	0	49	68	2.80	+5.2	2.27	10	1	0	0	11.0	--	*57	NW	18	8	8	15	6.5	--			
Waco	504	994.9	1012.8	68	46	57.0	-2.1	87	19	32	24	0	1	43	72	2.05	-1.03	.78	8	5	0	0	13.3	SSE	--	--	11	9	11	5.5	--				
Wichita Falls	1027	975.6	1012.7	65	40	52.5	-3.5	89	31	23	23	0	5	33	55	1.72	-.12	1.04	6	4	T	0	14.3	SE	*45	WSW	12	17	4	10	4.5	--			
UTAH																																			
Milford	5028	841.2	1012.8	45	24	34.3	-6.7	66	29	0	14	0	29	27	--	1.83	+8.5	.44	12	0	16.4	7	8.0	SSE	34	--	--	3	7	21	7.7	--			
Salt Lake City	4222	862.2	1012.9	41	26	33.3	-6.2	58	29	5	3	0	26	27	77	3.56	+1.76	.99	17	1	35.6	11	8.0	SSE	34	SE	18	5	7	19	7.7	43			
VERMONT																																			
Burlington	331	1000.7	1015.4	37	23	29.9	+8.8	50	21	-5	2	0	28	22	75	1.73	-.31	.63	12	0	11.6	11	9.0	N	34	NW	12	5	5	21	7.8	33			
VIRGINIA																																			
Cape Henry CO	16	1014.6	1015.2	54	42	48.0	+1.4	85	21	31	16	0	2	-----	4.52	+6.5	2.28	9	2	T	0	14.6	--	42	NW	16	7	12	12	6.1	59				
Lynchburg	947	981.4	1015.7	56	35	45.3	-1.1	81	21	24	8	0	15	32	63	5.04	+1.50	1.31	12	2	.4	T	9.3	SSW	40	S 11	9	8	14	6.0	55				
Norfolk CO	11	1012.5	1015.8	57	41	49.1	+1.9	84	21	30	16	0	5	-----	4.41	+6.4	2.11	10	2	T	0	10.9	--	40	S 11	--	--	--	--	--	56				
Norfolk	11	1014.6	1015.8	56	39	47.8	+1.8	83	21	29	16	0	4	37	68	4.54	+7.7	2.05	9	1	T	0	10.8	N	--	--	--	7	10	14	6.5	--			
Richmond CO	162	-----	-----	58	37	47.2	-.0	84	21	28	7	0	8	-----	5.61	+1.93	1.84	11	1	T	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	59			
Richmond	162	1009.8	1016.0	58	35	46.3	+2.8	85	21	25	9	0	14	34	67	5.05	-----	1.78	12	1															

See footnotes at end of table.



## CLIMATOLOGICAL DATA

Table 2—Continued

MARCH 1952

State and station	Elevation (ground)	Pressure		Temperature										Precipitation						Wind			No. of days		Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
		Station	Sea level	Average maximum		Average minimum		Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity		Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
				°F.	°F.	°F.	°F.							°F.	°F.		°F.	°F.				°F.	°F.	°F.				°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.

Data from airport unless otherwise specified. CO indicates data from city office.

\* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

\* Other dates also.

† Peak gust.

† First sunrise January 23d.

● First sunrise January 15th.

# Max. 70°F. or above for Alaskan Stations.



## HEATING DEGREE DAYS

Table 3

(Base 65°F.)

MARCH 1952

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period July through this month	Long term mean July through this month		This month	Period July through this month	Long term mean July through this month		This month	Period July through this month	Long term mean July through this month		This month	Period July through this month	Long term mean July through this month
ALABAMA				IOWA				NEW JERSEY (Cont'd.)				TEXAS (Cont'd.)			
Birmingham	388	2318	2390	Burlington	922	5662	5249	Newark	774	4336	4861	Amarillo	613	3722	3815
Mobile (CO)	203	1265	1483	Charles City (CO)	1084	6911	6755	Trenton	767	4255	4509	Austin	211	1340	1628
Mobile	214	1359		Davenport (CO)	936	5663	5575	NEW MEXICO				Big Spring	337	2181	2510
Montgomery (CO)	254	1695	1959	Des Moines	975	6170	5769	Albuquerque	693	4002	4031	Brownsville	20	356	616
Montgomery	285	1820	1976	Dubuque	1087	6748	6176	Clayton	819	4641	4392	Corpus Christi	53	627	950
ARIZONA				Keokuk (CO)	859	5124	5118	Raton	919	5477		Dallas	314	1908	2252
Flegstaff	1122	6357	5880	Sioux City	1083	6686	6255	Roswell	512	3091	3327	Del Rio (CO)	141	1102	1465
Payson (CO)	776	3851		KANSAS				NEW YORK				El Paso	437	2432	2413
Phoenix	288	1494	1381	Kansas (CO)	885	5105	4882	Albany	1000	5998	5845	Ft. Worth	317	1915	2239
Phoenix	295	1606		Concordia (CO)	819	4718	4575	Bear Mountain (CO)	960	5618		Galveston (CO)	126	791	1144
Prescott	824	4282		Goodland	1010	5712	5005	Binghamton	1070	6297	5899	Galveston	133	817	
Tucson	383	1791		Topeka (CO)	803	4788	4660	Buffalo	968	5637	5864	Houston (CO)	147	965	
Winslow	761	4298		Topeka	820	4901		New York (CO)	766	4161	4613	Houston	161	1034	1294
Yuma	186	1044	1013	Whitite	747	4404	4264	La Guardia Field	750	4086		Laredo	51	565	
ARKANSAS				KENTUCKY				Oswego	984	5654	6031	Lubbock	526	3237	
Ft. Smith	487	2991	3024	Lexington	627	4110	4278	Rochester	976	5718	5799	Polestine (CO)	279	1615	1977
Little Rock	434	2717	2834	Louisville (CO)	588	3835	4014	Schenectady (CO)	974	5816		Port Arthur (CO)	156	973	1298
Texarkana	367	2167		Louisville	603	3952		Syracuse	978	5760	5914	Port Arthur	195	1134	
CALIFORNIA				Pikeville (CO)	532	3437		NORTH CAROLINA				San Angelo	293	1864	
Bakersfield	396	2148	2027	LOUISIANA				Asheville (CO)	582	3486	3651	San Antonio	157	1159	1402
Beaumont (CO)	600	2818		Baton Rouge	192	1227	1455	Charlotte	617	3621		Victoria	87	1476	
Bishop	750	4308	3937	Lake Charles	173	1075		Greensboro	440	2771	2948	Waco	269	1654	
Blue Canyon	1032	5214		New Orleans (CO)	125	902	1193	Hatteras	534	3345	3527	Wichita Falls	397	2526	
Burbank	376	1731		New Orleans	137	976		Releigh (CO)	468	2702	3029	UTAH			
Eureka (CO)	609	3643	3620	Int. Airport, Moisant	165	1005		Raleigh	498	2932		Millford	947	6030	
Fresno	454	2479	2206	Shreveport	308	1816	2043	Wilmington (CO)	344	2040	2233	Salt Lake City (CO)	922	5307	4844
Los Angeles (CO)	310	1315	1219	MAINE				Winston-Salem	514	3225		Salt Lake City	971	5732	5247
Los Angeles	338	1453		Caribou	1205	8083		NORTH DAKOTA				VERMONT			
Mt. Shasta (CO)	850	5127		Eastport	1021	6223	6786	Bismarck	1472	8975	7887	Burlington	1082	6512	6789
Oakland	429	2564	2501	Greenville (CO)	1174	7760	7935	Devils Lake (CO)	1405	9296	8821	VIRGINIA			
Red Bluff	461	2684	2394	Portland	1023	6242	6194	Fargo	1379	920	8215	Cape Henry	541	2746	3115
Sacramento (CO)	432	2476	2356	MARYLAND				Grand Forks	1326	9144	8671	Lynchburg	602	3664	3640
Sacramento	447	2618		Baltimore (CO)	667	3632	4004	Pembina	1334	8949		Norfolk	504	2676	3043
Sandberg (CO)	868	4170		Baltimore	715	4021		Williston (CO)	1453	8862	8139	Richmond (CO)	551	3254	3521
San Diego	280	1215	1340	Frederick	728	4227		OHIO				Richmond	579	3427	
San Francisco (CO)	420	2812	2450	MASSACHUSETTS				Akron	915	5502	5405	Rosnoke	609	3659	3749
San Francisco	431	2752	2661	Boston	856	4753	5087	Cincinnati (CO)	620	3930	4433	WASHINGTON			
San Catalina	479	2161		Milton	962	5422		Cincinnati	695	4446		Ellensburg	816	6244	
Santa Maria	446	2412		Nantucket	888	4524	4755	Cleveland (CO)	857	4911	5283	Kelso	683	4418	
COLORADO				Pittsfield	1058	6435		Cleveland	870	5154		North Head (CO)	670	4390	4015
Alamosa	1161	7491		MICHIGAN				Columbus	771	4833	4849	Olympia	699	4640	
Colorado Springs	1016	5613		Alpena (CO)	1163	6807	6862	Dayton	785	4940	4869	Port Angeles	666	4756	
Denver	962	5342	4960	Escanaba (CO)	1202	7331	7292	Sandusky (CO)	861	5010	5285	Seattle (CO)	589	3787	3717
Grand Junction	878	5589	5073	Grand Rapids (CO)	965	5721	5813	Toledo	897	5466	5481	Seattle	629	4432	
Pueblo	840	4989	4878	Grand Rapids	954	6089		Youngstown	935	5518		Spokane	867	6179	5477
CONNECTICUT				Lansing	1025	6168	6167	OKLAHOMA				Stampede Pass (CO)	1122	7605	
Bridgeport	832	4648		Marquette (CO)	1184	7374	7233	Oklahoma City (CO)	539	3255	3408	Stevenson (CO)	677	4491	
Hartford	854	5084	5309	Muskegon	1039	6123		Oklahoma City	550	3316		Tacoma (CO)	647	4149	4100
New Haven	852	4784	5082	Sault Ste. Marie	1279	7902	7757	Tulsa	561	3415		Tatoosh Island (CO)	683	4753	4568
DELAWARE				Ypsilanti	935	5683		OREGON				Walla Walla (CO)	606	4511	4333
Wilmington	751	4204		MINNESOTA				Baker (CO)	967	6416	5961	Yakima	740	5671	5007
DIST. OF COLUMBIA				Duluth (CO)	1286	8604	8117	Burns (CO)	1017	6909		WEST VIRGINIA			
Washington (CO)	656	3639	4062	Duluth	1352	8314		Eugene	1031	6577		Charleston	635	3786	
Washington	667	3625		International Falls	1395	9445		Mecham	1059	6605		Elkins	817	4946	5015
FLORIDA				Minneapolis	1199	7468	7062	Medford	692	4270	3964	Huntington	572	3519	
Apalachicola	135	1023		Rochester	1205	7486		Pendleton	677	4846		Parkersburg (CO)	677	4121	4413
Daytona Beach	80	620		St. Cloud	1321	8342	7787	Portland (CO)	582	3764	3646	Petersburg	727	4306	
Fort Myers	11	261	273	St. Paul	1178	7342	7069	Portland	600	4074		WISCONSIN			
Jacksonville (CO)	104	885	1094	MISSISSIPPI				Roseburg (CO)	597	3518	3575	Green Bay	1183	7361	6855
Jacksonville	129	1022		Jackson	298	1813	2064	Salem	640	4118		La Crosse (CO)	1067	6756	6906
Key West (CO)	0	17	46	Meridian	324	1899	2106	Sexton Summit (CO)	948	5321		La Crosse	1108	6997	
Key West	0	31		Vicksburg	269	1671	1964	Trousdale	644	4158		Madison (CO)	1091	6594	6486
Melbourne	30	347		MISSOURI				Philadelphia (CO)	715	3874	4229	Madison	1094	6755	
Miami	10	132	178	Columbia	746	4657	4567	Philadelphia	728	4046		Milwaukee (CO)	1047	6146	6078
Int. Airport, Hialeah	5	104		Kansas City	781	4632	4553	Pittsburgh (CO)	751	4352	4714	Milwaukee	1043	6365	
Miami Beach	47	514		St. Joseph	835	5146	4850	Reading (CO)	751	4292	4625	WYOMING			
Pensacola (CO)	177	1152	1371	St. Louis (CO)	670	4165	4177	Scranton (CO)	881	5202	5401	Casper	1173	6786	
Tallahassee	131	1070		St. Louis	693	4368		Williamsport	860	5290	5345	Cheyenne	1141	6583	6224
Tampa	33	411	539	Springfield	663	4273	4147	Block Island	847	4373	4781	Lander	1176	7128	7016
West Palm Beach	9	148		MONTANA				Providence (CO)	832	4613	5092	Rock Springs (CO)	1196	7243	
GEORGIA				Billings	1021	6795		Providence	864	4853		Rock Springs	1281	7648	
Albany	180	1395	1595	Butte	1443	8863		SOUTH CAROLINA				Sheridan	1193	7195	
Atlanta (CO)	415	2532	2769	Glasgow (CO)	1452	8800		Charleston (CO)	215	1490	1751	ALASKA			
Atlanta	417	2506		Great Falls	1136	7350		Columbia (CO)	238	1657		Anchorage	1900	6842	
Athens	417	2580		Havre (CO)	1376	8305	7356	Columbia	202	2008	2317	Annette Island	1146	4168	
Augusta	321	2059	2156	Holena	1161	7869	6086	Florida	345	2180		Barrow	2499	9928	10902
Columbus	301	1946		Kalispell	1043	7381	6769	Greenville	430	2704	2824	Bethel	1943	7295	7359
Macon	259	1781	2197	Miles City	1317	8173		Spartanburg	431	2759		Cordova	1595	5974	
Macon	452	2820		Missoula	1015	7150	6498	SOUTH DAKOTA				Fairbanks	2621	8690	8777
Savannah	200	1463	1550	NEBRASKA				Charleston	215	1490		Galena	2607	9106	
Valdosta	143	1205		Grand Island	1016	6044		Charleston	238	1657		Gambell	1764	7410	
IDAHO				Lincoln (CO)	952	5691	5382	Columbia	202	2008		Juneau	1565	5587	
Boise	868	5579	4894	Lincoln	977	5939		Columbia	345	2180		Kotzebue	2321	8873	
Lewiston	710	5053		Norfolk	1097	6606		Florida	345	2180		McGrath	2598	8651	
Pocatello	1111	6729	5737	North Platte	1051	6169	5617	Greenville	430	2704	2824	None	1963	7779	7918
ILLINOIS				Omaha	972	5993	5647	Spartanburg	431	2759		Northway	3027	10036	
Calro (CO)	520	3410	3651	Scottsbluff	1033	6124	6300	SOUTH DAKOTA				St. Paul Island	1027	5421	
Chicago (CO)	904	5332	5434	Valentine (CO)	1169	6911		Huron	1322	7924	7026	Umat	2841	12002	
Chicago	917	5635		NEVADA				Pierre	1331	7870	6477	Wales	2099	9017	
Chicago University	920	5486		Elko	1184	7068		Rapid City	1208	6951	6204	Yakutat	1477	5569	
Joliet	943	5911		Ely	1312	7443		Sioux Falls	1215	7544		TENNESSEE			
Moline	970	5904		Las Vegas	447	2832		TENNESSEE				Bristol	595	3627	
Peoria	891	5571	5348	Reno	955	5502	4771	Chattanooga	454	2931	2985	Knoxville	487	3098	334



## SEVERE STORMS

Table 4

MARCH 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Pennsylvania, southeast- ern counties	1	1:30-8:30 a.m.			2	4			Snow	Snowfall at rate of 1 inch an hour in some sections slowed traffic to a crawl. Harrisburg man died while shoveling heavy snow. In Philadelphia, 1 person killed and 4 injured when automobile, driver blinded by snow, crashed into traffic island.
Western and northern Maryland and Delaware	1	A.m.			1				do	Air Force corporal killed by automobile while pushing auto, stalled in snow. Traffic tie-ups reported for several hours in Baltimore, and a few power failures reported.
Darlington, S. C.	1	Morning					\$1,000		Wind	Trees uprooted; limbs and television aerials blown down.
Newberry, S. C.	1						8,000		do	High winds in connection with a thunderstorm early on 1st or possibly late on February 29 destroyed a home and damaged a few others.
New Jersey, entire State	1	A.m. and early p.m.			1	10	See remarks		Snow	3- to 10-inch snowfall throughout entire State, with heaviest in southern half. Killed and injured were result of traffic accidents attributed to storm. Most roads blocked during morning hours, but normal traffic resumed by mid- or late afternoon. Damage estimated at several thousand dollars, mostly to automobiles, with some to power and communication lines.
Jarrell, Williamson County, Tex.	1	10:30 p.m.	1,760	5			1,000		Wind	Damage to awnings and chicken houses.
Hudson (near), Wis.	2				3	1			Snow	3 members of one family killed in traffic accident attributed to slippery roads.
Sachse, Dal- las County, Tex.	2	10 p.m.			0	0	3,000		Tornado	Small community about 5 miles northeast of Garland.
Mathias and vicinity, W. Va.	3	Midnight							Wind	Brief storm uprooted numerous trees and blew roofs off several buildings.
Fort Worth, Tex.	3	1:45 a.m.					5,000		do	30 masonry car ports blown down; also, plate glass broken, and storeroom unroofed.
Revillee Val- ley, Logan County, Ark.	3	2:30 a.m.					°2,200		° Hail and elec- trical	Damage to roofs and windows. 10 cows and 2 horses killed.
Waco, Tex.	3	2:50 a.m.					25,000		Wind and hail	Moderate hail; trees blown down; plate glass windows broken; slight hail damage to automobiles.
Pope County, Ark.	3	3 a.m.	*8	20			60,000	\$50,000	Hail	50% of peach blossoms knocked off, and 10% of twigs damaged or broken. Extensive damage to roofs, windows, and automobiles.
Washington County, Ark.	3	5 a.m.					60,000		Electri- cal	Home 8 miles east of Fayetteville destroyed by fire when struck by lightning.
Jackson Coun- ty, Ark.	3	5 a.m.	*1½	8			°23,000		° Wind, and hail	Storm moved eastward. 1 house destroyed, several damaged, 2 barns destroyed, and several automobiles damaged by hail.
Cleburne County, Ark.	3	5:30 a.m.	*2	10			See remarks		Hail	Heavy damage to roofs of houses and barns north of Heber Springs. Path of storm northeastward. Total of 75 homes reported damaged.
Booneville, Logan Coun- ty, Ark.	3	5:45 a.m.	50	*100			998		0 Tornado	Principal damage to roof of lumber yard.
Craighead County, Ark.	3	7:30 a.m.	*10				°65,000		° Wind, and hail	Storm struck wide area in eastern Craighead County moving eastward. Extensive damage to strawberry and peach crops. Some poultry killed. Considerable damage to roofs and windows in Black Oak, Lake City, and Caraway.
Mississippi County, Ark.	3	7:55 a.m.	1,320	20			°300,000		° Hail, wind, and rain	Extensive damage to roofs and windows at Manila, and to hangar at Blytheville Airport. Nearly 1,000 tons of fertilizer destroyed at Blytheville Airport when warehouse roof, damaged by hail, allowed rain to enter. Some crop damage.
Iowa, south- central and east-central portions	3	All day	*100	200	1			0	Snow	Traffic tied up.
Brunswick County, Va.	3						18,000		Electri- cal	Home, 10 miles south of Lawrenceville, destroyed by fire after being struck by lightning.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

MARCH 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Gordo, Pick- ens County, Ala.	3	1:10 p.m.	440	3	0	6	\$50,000		Tornado, hail, and winds	Tornado, light hail, high winds; 73 frame buildings destroyed and 52 damaged; trees uprooted and utility lines blown down; livestock killed.
Tuscaloosa County, Ala.	3	4 p.m.					8,000		Wind	3 buildings destroyed, 18 buildings damaged; trees uprooted; utility lines blown down; livestock killed; winds 45 m.p.h. at Tuscaloosa, with gusts up to 70 m.p.h.
Shelby Coun- ty, Ala.	3	P.m.	13	1/17		1	5,000		do	Cafe destroyed.
Auburn, Ala.	3	P.m.					5,000		do	5 buildings and 2 automobiles damaged; trees up- rooted.
Montgomery, Ala.	3	6 p.m.	200	1		1	100,000		do	Large trees uprooted and blown onto residences and automobiles; 13 buildings destroyed and 80 damaged. Winds 45 m.p.h. at Dannelly and 65 m.p.h. at Max- well Field.
Macon (southern suburbs), Ga.	3	9:11-9:30 p.m.	*1	5-6	0	4	250,000	\$ 0	Tornado	Storm moved southeastward through populous suburban area south of Macon, with heaviest damages in Bloomfield Road section. More than 400 houses re- ceived minor damage, with total destruction to 4 and major damage to 10 others, one a large school build- ing; 2 business places heavily damaged and 7 moder- ately damaged. Many trees and utility lines blown down, knocking out some 1,800 telephones and greatly disrupting services.
Orangeburg County, S. C.	3-4	During night					10,000		Winds (tor- nadic)	High winds with evidence of tornadic conditions (as reported by Red Cross) destroyed 1 home and damaged 7 others. Weather map at 7:30 a.m., 4th, showed passage of severe squall line.
South Caro- lina, Pied- mont section	3-4	All day					200,000	See remarks	Rains and high water	As a result of heavy rains and high water, roads washed and bridges damaged or closed. Crop damage unknown.
Wisconsin, southern portion	3-4	Night							Snow	3- to 6-inch snowstorm retarded traffic on main high- ways. Many secondary roads blocked by drifting snow. Schools in rural areas closed for 1 or 2 days.
Kansas, most of State	3-4	Evening of 3d- early a.m. of 4th			3				do	Heavy snow amounted to 12 inches in some northeastern localities and produced substantial cover over re- mainder of State, except some western counties and an area in southeast. The heavy fall followed 2 days of rain and snow. Little drifting occurred and effect was largely beneficial, except for tem- porary hindrance to traffic and the 3 deaths attrib- uted to storm.
Meyersdale, Pa.	4								Winds	Power line blown down over telephone lines, causing telephones in 3 sections to ring until friction set them afire, and set one farm home afire. Telephone lineman shocked when he climbed a pole and fell about 25 feet, but apparently unhurt.
Marysville, Pa.	4	6:30-8:30 a.m.			1	4	See remarks		Ice (glaze)	Light drizzle falling on icy highways resulted in a major accident with 1 man dead and 4 injured; series of minor crashes did property damage of several hundred dollars.
Wheeling, W. Va.	4	Forenoon							Wind	Large display window in store shattered.
New Jersey, northern portion	4	P.m.				2	5,000		Electri- cal, hail, snow, and rain	Hail, snow, and rain, together with high winds caused power and communications failures. Two people hurt in Orange traffic accidents. Two homes struck by lightning, one, the birthplace of Joyce Kilmer, partly burned.
Bennington and Windham Counties, Vt.	4-5	10:30 p.m.- 12:30 a.m.							Electri- cal	Lightning caused rather widespread circuit failures; numerous district circuits knocked out.
Berkshire County (northern portion), Mass.	4-5	10:30 p.m.- 12:30 a.m.							Thunder- storm	
Moreauville, La.	10	12:30 a.m.					3,000		Squall	

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

MARCH 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
DeSoto, Bos- sier, Clai- borne, and Webster Parishes, La.	10	8:30-9:45 a.m.	300- 1,000	46	0	0	\$135,000		Tornado	Tornado developed in community of Carnahan, DeSoto Parish and moved northeastward across Lake Bisten- eau to Dubberly in Webster Parish, and to community of Harris and vicinity of Homer in Claiborne Parish. It apparently degenerated into a windsquall after passing over Dubberly. Damages in Carnahan \$25,000 Dubberly \$100,000 and Harris \$10,000.
Lake Charles, La.	10	11 a.m.					5,000		Squall	
Grand Isle, La.	10	Morning					3,000		Wind- driven tides	Eroded beach and undermined beach cottages, causing damages to some homes.
Bluefield and vicin- ity, W. Va.	10-11	1:30 p.m., 10th to 11:45 a.m., 11th							Wind and rain	Roof blown off one residence, another residence blow off foundation and 2 other homes damaged; plate glass windows and electric signs damaged; trees up- rooted; power lines blown down; numerous small, local flash floods.
Donaldson- ville, La.	10	2:30 p.m.					5,000		Squall	
Smith Coun- ty, Miss.	10	3 p.m.					15,000		Thunder- squall	
New Orleans, La.	10	3:30 p.m.					10,000		Squall	
Montgomery, Ala.	10	6:41 p.m.	100	2			10,000		Wind	1 building destroyed; 25 buildings damaged; large trees uprooted; wind in gusts 94 m.p.h. at WBAS Dannelly Field, and 105 m.p.h. at Dannelly Field Control Tower.
Nashville, Tenn.	10	7:30 p.m.				5	25,000		Wind and rain	Winds of 60 m.p.h. associated with near record low pressure, lashed Nashville area, causing heavy dam- age to power lines, show windows, and sign boards; several persons sustained minor injuries in traffic accidents during heavy rain. Nashville recorded a low sea level pressure of 29.13 inches to approach the all-time low of 29.02 inches recorded in Febru- ary 1902.
Birmingham, Ala.	10	P.m.					2,000		Wind	Utility lines down; large trees uprooted; roofing blown off several buildings; wind gusts up to 66 m.p.h. at Birmingham Airport.
Meyersdale, Pa.	10-11	Overnight							Rein	Heavy rains plus melting snow sent streams over bank. Water covered some roads, the fairgrounds, and seeped into cellars. Lowland sections reported water 2 to 6 feet deep.
Harrisburg and Mechan- icsburg, Pa.	10-11	Night of 10th, day of 11th					See remarks		Rain and wind	Heavy rains washed out base of 35-foot long, 15-foot high brick wall, and caused it to collapse on ad- joining property. Mechanicsburg Sewage Disposal plant unable to handle drainage as water table in area rose. Truck skidded on slippery highway, went over bank and into field, but driver unhurt. Winds with gusts to 54 m.p.h. damaged signs, bent TV an- tennae and upset news stand. Damage estimated at several hundred dollars.
North Caro- lina:	11	All day							do	General windy weather and heavy rains caused much minor damage over State, with swollen streams and flooded highways in mountains. Reported damages follow.
Snow Hill, Green County							10,000			Washed out fill on highway NC 258.
Elizabeth City, Pas- quotank County							2,000			Waterfront property flooded.
Ayden, Pitt County							10,000			Blew off several roofs, destroyed outbuildings, and disrupted telephone and power services.
Vanceboro, Craven County							1,000			Power lines shorted out. Minor damage to buildings.
Statesville, Iredell County							5,000			Short circuit and explosion at power substation; electric service out all day.
Charlotte, Mecklenburg County							2,000			Power lines broken. Minor damage to buildings.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

MARCH 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
New Jersey, northern portion	11	All day					See remarks		Rain and wind	Heavy rains caused flooding of small streams. Damage slight to moderate. High winds caused little dam- age.
Maryland and Delaware, all sec- tions	11	A.m., p.m.			1				Wind and thunder- storm	Winds of strong gale force and occasional gusts of 75 m.p.h. or more caused damage to boats at Kent Narrows (\$10,000), and sunk a barge near mouth of Choptank River. Numerous roofs sustained damage, trees felled, limbs broken, and telephone lines and television antennae downed. Millers Island flooded. Windstorm accompanied by thunderstorm at Chewsville, Md. damaged many small buildings.
Indianapolis and vicini- ty, Ind.	11	2-5 a.m.					\$1,000		Wind	Electric wires downed. A few windows and street lights broken.
Belknap County (southern portion), N. H.	11	6 a.m.- 12 mid- night					1,800		Snow and wind	Further accumulation of wet, heavy snow on already deep cover created very difficult travel conditions. High winds caused much limb damage.
Chesterfield County, Va.	11	7:05-7:12 a.m.	50	**75			1,500		Wind	On farm at intersection Route 147 and Old Gun Road, wind flattened a 40- x 30-foot wooden barn, blew top off of a cinder block chicken house, downed 3 trees, and moved house some 8 inches off its foun- dation. One tree fell and damaged automobile.
Hampton Roads area, Va.	11								do	Freighter dragged anchor and bumped liner " <u>United States</u> ", cracking its main deck rail at Newport News. Spanish ship dragged anchor and went aground off Old Point Comfort.
Nelson Coun- ty, Va.	11								Rains	Considerable damage to pipe lines, ditches, and roads in northern part of County.
Berkshire County (northern portion), Mass.	11-12	11 p.m.- 6 a.m.					2,000		Severe frontal squalls	Gusts felled trees, tore away signs, roof gutters and miscellaneous objects. Berkshire Museum in Pitts- field lost 750 feet of copper roofing. Falling branches caused local blackouts and fouled telephone lines in Adams, North Adams, and Williamstown.
Hooverville, Lancaster County, Pa.	11						2,000		Wind	An 80 x 30 foot chicken house unroofed and the build- ing levelled to first floor.
Washington, D. C. and vicinity	11						1,500		do	High winds throughout day. Several trees blown over; one tree struck a house, while another demolished a lamp post. Light airplane was overturned at River- dale, Maryland.
Pennsylvan- ia, central portion	11-12						°300,000		° Rain	Heavy rains (up to 3.7 inches in 12 to 18 hours) and melting snow sent many smaller streams well over their banks, covered roads, and forced residents from homes. One school closed early to let pupils return home before highways were inundated. Muncy Creek smashed valve in Hughesville water supply line, leaving about 2,000 people without safe water and forcing schools to close. Many autos stranded in flood waters, and many homes in the Conodoguinet, Yellow Breeches, Muncy, Lycoming, and Swatara creek valleys inundated by flood waters. Near Caledonia, large tree blown against power lines, knocking out electric power for 3 hours.
Colorado, eastern portion	12	3 a.m.- 11 p.m.	*200	300			61,200	\$3,000	Wind	West to northwest winds of fresh to gale force pre- vailed over a 200 mile strip east of Continental Divide, accompanied by severe soil movement in southern portion. Light to moderate damage to tele- phone and transmission lines, trees, and small buildings in northern section, with more severe losses to plate glass windows, buildings, and auto- mobiles in metropolitan areas of Colorado Springs and Pueblo. Crop damage from soil erosion limited to southern half of storm area, where visibility at some points reduced to near zero, by blowing dust. Some damage to windmills and other farm buildings in eastern counties.
Carroll County, Mo.	12	Afternoon					5,000		do	Straight winds demolished a garage near Leta. On farm near Carrollton a milk barn blown away, and roof of another barn ripped off.
Ringgold County, Iowa	12	3 p.m.	700	20			10,000		Thunder- storm and wind	Several buildings damaged.
Kansas	12	Daylight hours			2	6	See remarks		Wind	Gale-force winds attended a deep low-pressure center in transition across Kansas. In northwest wind speeds rose from 13 to 55 m.p.h. with the wind shift, and sustained speeds of 25 m.p.h. followed for 12 hours. In southwest, central, and east ac- celeration was more gradual, but continued above

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

MARCH 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Kansas (Cont'd.)										<p>25 m.p.h. from near 1 a.m. to sunset in southwest, and from 10 or 11 a.m. to evening in east. Highest speeds recorded at CAA and WB offices ranged from 60 to 80 m.p.h. with gusts of greater speeds.</p> <p>Roofs bore brunt of damages, with shingles and guttering torn loose and in some cases entire roof torn off. Great number of plate glass store windows and picture windows in homes broken; television aerials and windmills blown down; awnings, signs, and trees ruined; outbuildings in many cases demolished; fences mashed down with debris; telephone and power lines broken by poles snapped off or trees and limbs blown on lines. Southern and eastern areas reported greater losses.</p> <p>Little soil blowing, except in sandy southern counties where paint and windshields of many automobiles indicated a sand-blast effect. Dampness also prevented spread of fires.</p> <p>Many schools closed, airplane traffic ceased, and highway travel became dangerous. Asphalt on road south of Garden City rolled up. Stock tank near Larned had all the water blown out of it. In Wichita a woman's pocket book blown up to a third or fourth story where dashed against building and contents distributed. Also near Wichita, wind set a train of box cars in motion.</p> <p>Greatest individual loss resulted from toppling of structural steel frame work of new science building at Kansas University. Damage estimated at approximately \$40,000 and caused delay of a month or 6 weeks in completion.</p>
South Dakota	12	One day							Snow and winds	<p>Snowstorm was brief, but winds and snow lasted during day and evening. All roads over state, except southwest, south-central, and central; 1 to 4 inches elsewhere. With no winds or snow on 13th, ample opportunity was given to clear main highways and railroads. Communications not interrupted. Numerous automobile traffic accidents.</p>
Lee County (south portion), Ga.	13	3:20-3:25 a.m.	100-200	1	0	0	\$18,550	\$ 0	Tornado	<p>Storm moved north-northeastward in Lee County over length of about 1 mile at a point near 5 miles south of Leesburg; described by two witnesses as making roaring sound like a moving freight train. High winds blew down 25 telephone poles and 4 railroad poles and more than 20,000 feet of wire and accessories, including a 64-wire main trunk line. High winds also destroyed a storage barn and unroofed two others.</p>
West Virginia, most of State	13	Most of day							Dust	<p>Horizontal visibility considerably reduced. Deposit of reddish-brown dust on most surface objects. Dust apparently picked up day before by high winds in northern Texas-Oklahoma-Kansas area.</p>
Hall, Md.	13	4:12 p.m.					20,000		Electrical	<p>Large barn and contents destroyed by fire after building struck by lightning.</p>
Maryland and Delaware	16	P.m.				2			Wind	<p>Winds up to 53 m.p.h. pounded State, blowing 2 ships loose from anchor in Baltimore harbor, and flipping airplane on its back at Friendship Airport; 2 passengers injured, 2 escaped injury. A few trees uprooted. 10 field fires broke out.</p>
Wichita Falls, Tex.	17	7:50 p.m.	30	3	0	0	15,000		Tornado	<p>Buildings unroofed and small buildings blown down about 5½ miles south-southwest of airport.</p>
Graford, Palo Pinto County, Tex.	17	8 p.m.	30	**880	0	0	800		do	<p>Lamps damaged at Possum Kingdom Dam. Top torn out of a large tree.</p>
Russell County, Kans.	17	Evening				1			Electrical	<p>Man knocked unconscious while talking over phone in home; revived 45 minutes later by first aid.</p>
Southwest Pass, mouth of Mississippi River, La.	18	Noon					50,000		Tidal wave	<p>Wall of water estimated 6 feet high swept over jetties from southwest, displacing 175 concrete blocks weighing from 5 to 18 tons each. At Burrwood, 5 miles up river, a rise of 2 feet noted, and at Grand Isle, a rise of 1½ feet noted at 11:30 a.m., against north winds behind a cold front. Believed to be due to underwater earthquake near shore. Local seismograph recorded shock originating near Yucatan at 12:30 p.m., but this occurred prior to that time, and phenomenon was not noted as far east as Mobile.</p>

See footnotes at end of table.



## SEVERE STORMS

Table 4--Continued

MARCH 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
St. Francois and St. Genevieve Counties, Mo.	18	5:30 p.m.	35- 100	15	0	1	\$35,000	\$5,000	Tornado	Tornado traveled northeastward from near Doe Run to 1 mile south of Farmington and continued in same direction for about 10 more miles (toward Weingarten in Ste. Genevieve County). 1-inch hailstones observed in vicinity of path. 2 homes destroyed and 16 damaged in addition to 45 other buildings affected. Crop damage was to hay in storage.
Kane, Ill.	18	6:07 p.m.	10	3	0	1	25,100		do	Damage confined largely to residences and outbuildings. Tornado at surface only in immediate vicinity of Kane.
Evansville, Ill.	18	6:21 p.m.	100	4	0	0	50,000		do	Most of damage occurred at International Shoe Factory where estimated \$35,000 destruction to factory and contents occurred.
Cape Girardeau County, Mo.	18	6:30 p.m.	500	3	0	0	25,000	Slight	do	Tornado traveled northeastward near Burfordville, passing about 6 miles west of Jackson. About 20 farm buildings destroyed or damaged badly. Baby chicks, hogs, and other livestock killed. Small amount of timber destroyed.
Bluefield and vicinity, W. Va.	18	Evening							Wind	Trees uprooted; telephone and power lines downed, causing temporary interruptions to services; portion of facade of one building blown off.
Newville, Pa.	20					1			Snow	Slushy, slippery highways resulted in several minor skidding accidents; one driver injured.
Wyoming, southern portion	20-21								do	Several cars stalled on Highway #30 between Rawlins and Rock Springs.
Colorado, east-central portion	21-22	4 a.m.- 6 p.m.	*75	300	2		10,000	500	Wind and snow	Heavy snowfall and strong winds prevailed east of and along Continental Divide, extending from the Wyoming to the New Mexico borders. Drifting snows and icy road conditions slowed automobile transportation and resulted in many minor accidents. Many rural and some city schools closed. Some spring calf and lamb losses resulted from exposure. One person died as a result of exposure in North Denver and another in the skidding of automobile near Castle Rock.
Kansas, west and north-central portions	21-22	Early a.m. 21st- afternoon 22d					See remarks		Blizzard	Winds up to 50 m.p.h. and more accompanied snow over western, most of central, and extreme northeastern sections, reducing visibility to near zero for nearly 36 hours and piling drifts up to 6 feet high in north. Freezing drizzle preceded snow in central and left 3/8 to 1/2 inch of ice on telephone and power lines. Telephone service largely disrupted in area bounded on east by St. Marys, on west by Ness City, on south by Kingman, and on north by Nebraska line. All highways in northwest highway division (20 counties) and some in north-central and southwest areas closed. Busses and automobiles stalled for hours.
Dierks, Howard County, Ark.	21	3-3:15 p.m.	100	13	7	9	°151,500		° Tornado	Struck area 1/4 to 1/2 mile southwest of Dierks, following a northeastward path. Destruction observed over an area 1/2 mile in width. Twenty-two homes destroyed and considerable livestock and poultry killed.
Paron, Saline County, Ark.	21	4-4:15 p.m.	440	9	0	0	39,000	0	do	Continuation of storm that hit Dierks. Damage included several houses and barns destroyed, several damaged, and some livestock killed and injured. Storm moved northeastward.
Nebraska, most of southeastern third	21-22	Afternoon and night							Blizzard	Practically all roads and highways blocked. Some losses of young livestock. Most severe blizzard in many years over south-central and eastern Nebraska.
Pulaski County, Ark.	21	5 p.m.			0	0	0	0	° Tornado	Tornado cloud observed aloft to north of North Little Rock, moving northeastward. Storm apparently did not touch ground in Pulaski County.
White County, Ark.	21	5:15-5:45 p.m.	*1 1/2	40	50	325	°3,500,000		° do	Continuation of storm that hit Dierks, Paron, and Mayflower. Storm first hit 2 miles south-southwest of Searcy, passed to east of town moving in a northeasterly direction. Community of Kensett suffered considerable damage. Town of Judsonia lay squarely in path of storm and was almost completely leveled. Storm continued northeastward, inflicting heavy damage at Bald Knob. Heaviest damage at Judsonia; 385 homes destroyed and 560 damaged. Business section of Judsonia almost completely demolished. Storm lifted 5 miles northeast of Bald Knob.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

MARCH 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Lonoke County, Ark.:	21				11	45	°\$645,000		°	Tornadoes
Wattensaw		5:17 p.m.	*1/8 -1							
England		5 p.m.	200	6						
Carlisle		5-5:15 p.m.	200	5						
Woodruff County, Ark.:	21				29	180	°789,000		°	do
Georgetown		5:30 p.m.	600							
McCrory		6 p.m.	880	20						
Cotton Plant		6:15 p.m.	880	10						
Hillemann		P.m.								
Dyer County, Tenn.										
No. 1	21	5:35 p.m.)	200 to 1,000	5 to 15	16	50	1,110,000			Tornado
No. 2	21	8 p.m.)								
No. 3	21	8:30 p.m.)								
Mayflower, Faulkner County, Ark.	21	P.m.			0	6	15,000	\$	0	do
Hickory Plains and Hazen, Prairie County, Ark.	21	P.m.	440	12	6	20	°155,500		°	Tornadoes
Jackson County, Ark.	21				0	6	°21,000		°	Tornado
Hickory Ridge, Cross Coun- ty, Ark.	21				4	35	°150,000		°	do
Poinsett County, Ark.:	21				3	89	°765,000		°	Tornadoes
Harrisburg (3 miles north of)		6:45 p.m.								
Trumann		7:30 p.m.								
Marked Tree		7:45 p.m.								
Mississippi County, Ark.:	21				1	57	°514,000		°	Tornado
Milligan Ridge Com.		7:30 p.m.								
Blytheville		7:45 p.m.								
Pemiscot County, Mo.	21	8 p.m.	Up to 2,500 in spots	12	17	100	1,375,000	50,000	Tornado and hail	
Madison Sta- tion, Madi- son County, Miss.	21	8:30 p.m.	20	1	0	1	1,000	500	Tornado	

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

MARCH 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Byhalia and Casey, Marshall County, Miss.	21	9:45-10 p.m.	100	20	9	24	\$300,000	\$ 0	Tornado	Apparently developed short distance southwest of Byhalia, although much of area sparsely inhabited. Moved northeastward through Byhalia and Casey to Moscow, Tenn. Major damage occurred in settlement on edge of Byhalia. Observer stated some damage occurred within 50 feet of her residence when heavy cloud at tree-top level passed over from southeast ahead of tornado which seemed to merge with this cloud; 22 homes destroyed and 95 damaged in Marshall County. No crops growing.
Moscow, Fayette County, Tenn.	21	10 p.m.	425	20	8	42	100,000	5,500	do	Probably same tornado which struck Byhalia, Miss. a short time earlier, that dipped into town of Moscow. Storm path extended from about 4 miles southwest to 1 mile northeast of town. Three main areas of damage: (1) Near Bethlehem Methodist Church, about 4 miles southwest of Moscow; (2) Intersection of storm path with Highway 57, about 1 mile west of town; and (3) Intersection of path with Highway 76, about 1 mile north-northeast of Moscow. There were 27 families affected, 16 homes destroyed and 11 others damaged.
Medina, Gibson County, Tenn.	21	10:45 p.m.	150	**300	2	2	15,000		do	Another tornado, or possibly two, raked Gibson-Carroll Counties area.
Lavinia, Carroll County, Tenn.	21	10:50 p.m.	100	**200	0	0	82,000		do	
Leach, Carroll County, Tenn.	21	11 p.m.	150	**250	1	8	65,000		do	
Milan, Tenn.	21	11 p.m.	400	**800	1	3	500,000		do	Heaviest damage in Gibson County was Milan Arsenal, where 6 vehicles destroyed and 59 others damaged. 10 buildings completely destroyed and 10 damaged.
Bolivar and vicinity, Hardeman County, Tenn.	21	11 p.m.	150	**200	4	5	°225,000		do	Tornado struck Bolivar, destroying 14 homes, damaging 17, and affecting 35 families.
Henderson, Chester County, Tenn.	21	11:15 p.m.	1,275	50	21	100	°2,500,000		do	Next in storm's path was Henderson, where destruction heaviest. Path extended from 4 miles southwest to 1 mile northeast of town. Practically every building in town of 2,500 population damaged or destroyed. Best estimate is that 120 homes destroyed, another 360 damaged, and more than 400 families affected. Several automobiles destroyed, along with unknown number of livestock, as well as corn and hay in destroyed barns.
Bruceton, Carroll County, Tenn.	21	11:17 p.m.	175	4	1	19	500,000		do	The main force of second storm of this family, however, was felt at Bruceton, where entire business district demolished.
Chesterfield and vicinity, Henderson County, Tenn.	21	11:30 p.m.	175	**250	10	43	°555,000		do	Next hardest hit community was Chesterfield where 22 homes destroyed, 67 damaged, and 87 families affected.
Squeezebottom, Humphreys County, Tenn.	21	11:55 p.m.	500	**600	0	0	50,000		do	Several farm houses and outbuildings destroyed or damaged in Squeezebottom Community of Humphreys County before storm finally dissipated.
Wheatcroft, Ky.	21						15,000		Electrical	Fire caused by lightning destroyed Wheatcroft High School.
South Dakota, eastern two-thirds of	21,22 and 23				1				Snow and winds	Snow entered southeastern part of State night of 21st and spread over eastern two-thirds by morning of 22d. Winds continued throughout 23d, but snow had ceased by this date. New snowfall measured 8 inches in southeast to 1 to 5 inches elsewhere. Winds during storm reached peak gusts of 70 m.p.h. in southern part of State and 30 to 40 elsewhere. A great amount of drifting developed in southern part. Many cars stalled; a number of trains also stalled. One death occurred at Mitchell. Considerable cattle loss noted, since cattle were weakened at this stage of winter season. Hay lift operation put into effect on 25th in central and northwestern sections.
Kentucky	21-23				10	6	See remarks		Rain, wind, and electrical	Practically whole State received some damage with greatest damage in western, southern, and southeastern sections. Most damage caused by rains. Torrential rains sent rivers and creeks on rampage,

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

MARCH 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Kentucky (Cont'd.)										flooding basements, residential and business districts, blocking highways, and wiping out bridges. Utilities interrupted and many communities isolated. Reported as most devastating floods in some time in a few localities. Damage estimated in millions.
Larue County, Ky.	22	12:05-12:10 a.m.	300	3	0	18	\$250,000	Negligible	Tornado	A dozen homes destroyed or damaged, warehouse unroofed, buildings at Larue County Fairgrounds demolished, a number of barns knocked down, and an automobile damaged. Tornado hit southern part of Hodgenville.
Decatur County, Tenn.	22	12:20 a.m.	40	**800	3	10	35,000		do	Smaller tornado struck some 30 or 40 miles to the east, destroying 7 homes, damaging 2 others, and affecting 11 families.
Clinton, Iowa	22	8:24 a.m.					500		Electrical	Windows broken. Foundation of home damaged.
Iowa, western and northern portions	22	All day	*150	300			0		Snow and wind	Highways closed, air travel stopped, rail travel slowed, and power and phone lines downed.
Carthage, Smith County, Tenn.	22	11:15 a.m.	100	**400	0	1	24,000		Tornado	Tornado approached from northwest. It damaged Cumberland Chevrolet Company and one or two other nearby buildings.
Bethpage, Sumner County, Tenn.	22				2		5,000	\$10,000	Rain and flash flood	Man and wife swept from home and drowned by flash flood caused by 5 inches of rain.
Celina, Clay County, Tenn.	22				1				Flash flood	A 16-year old girl drowned while attempting to cross swollen stream.
Marble Plains, Franklin County, Tenn.	22				1				do	One person drowned.
Eminence, Ky.	22						3,500		Electrical	60 ewes and 35 lambs burned to death when lightning struck barn. The barn burned to ground.
Chilton County, Ala.	22	P.m.					5,000		Wind	15 buildings destroyed and 17 damaged.
Morgan County, Ala.	22	P.m.	100	25	4	50	50,000		Tornado	35 houses destroyed; 39 buildings damaged.
Tuscaloosa County, Ala.	22	P.m.				4	7,000		Wind	16 buildings destroyed; 5 buildings damaged.
Madison County, Ala.	22	P.m.				6	100,000		do	4 buildings destroyed; 6 buildings damaged; many buildings at Redstone Arsenal damaged.
Lawrence County, Ala.	22	P.m.				0	4,000		do	3 buildings destroyed; 1 building damaged.
Columbus, Ind.	22				1		0		Electrical	Farmer struck by lightning and killed, as he walked across field.
Lake St. Clair and Lake Erie, Mich.	22						See remarks		Wind	Strong northeast winds coupled with unusually high lake levels caused flooding along low-lying shorelines at west end of Lake Erie and west side of Lake St. Clair. At least 1,000 persons forced from homes. Hardest hit was Estral Beach where 75 families evacuated and 6 homes destroyed by flooding.
Bay City, Mich.	22						See remarks		do	Strong northeast winds pushed tons of ice on shore from Bay City to Linwood with resulting damage to cottages.
Minnesota, southern and eastern counties	22-23				6				Snow and wind	Traffic seriously delayed by drifts. Many roads and highways blocked; numerous automobiles stalled and travelers stranded. Many automobile accidents. Six deaths attributed indirectly to storm which assumed near-blizzard proportions in some extreme southern and eastern counties. At Minneapolis, a new 24-hour record for March snowfall established when 13.7 inches occurred. Unusually heavy snows reported in extreme southern Minnesota.
Wisconsin, most of State	22-23						100,000		do	5 to 10 inches of snow fell over northwestern half of Wisconsin. High winds caused much drifting. Many side roads closed by drifts. Traffic nearly halted in Superior and Ashland. Considerable erosion along shore of Lake Michigan because of northeasterly gales.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

MARCH 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Ellensburg, Wash.	25	7-8:30 a.m.					\$1,000		Wind	Northwest winds with speeds of 55 to 60 m.p.h. occurred for about 1½ hours, causing damage to power lines and trees; one tree crushed an automobile.
Ruff, Quincy, Lind, and vicin- ities, most of Columbia Basin, and southeast- ern and plateau wheat re- gions, Wash.	25								Wind and dust	High winds caused blowing dust and slight damage to wheat. Dust reduced visibility to point where highways through area were closed to traffic due to poor visibility.
Odessa, Wash.	28	During day					300	\$500	Wind	Some damage to wheat; necessary to reseed 160 acres. Some damage to roofs of buildings. Additional damage in area.
Southern Stephens County, Okla.	30	7-7:30 p.m.	*4 to 5				Minor	Slight	Hail	Slight crop damage as few crops have advanced sufficiently. Damage to automobile paint and glass. Press reports indicated hail 6 to 8 inches deep on highway, 3 miles south of Comanche, Okla.
Cashton (near), Wis.	30-31	Night					500		Electri- cal	Damage to power transmission lines near Cashton from lightning.
Butner Com- munity, northwest- ern Hughes County, Okla.	31	12 mid- night to 12:03 a.m.	200	3/4			1,200		Wind and hail	Accompanied by light hail, but no hail damage. One home damaged by wind, 3 sheds carried 1/4 mile.
Taylor, Wil- liamson County, Tex.	31	10:55 a.m.	1,760	3			2,500		Wind	Plate glass broken and small buildings damaged.
Lockwood, Mo.	31	4-4:30 p.m.	600	1			2,000		Hail	Hail about 3/4 inch in diameter struck city of Lockwood, damaging greenhouse and hotbed panes worth \$600; also damage to composition roofs.
St. Louis and St. Louis County, Mo.	31	4:30-5 p.m.	1,000	3			°100,000		° do	Only South St. Louis and adjoining suburbs to the southwest in St. Louis County were struck by hailstones almost as large as golf balls. A group of 32 greenhouses south of Kirkwood suffered \$90,000 damage; 75,000 panes of glass broken there and about 500,000 cut flowers and small plants ready for Easter ruined.
Idaho										On many days during month drifting snow blocked roads and highways, particularly in south-central and southeast. At Shoshone, in Lincoln County and Fairfield in Camas County roads blocked and schools closed intermittently throughout most of month. At Richfield, Lincoln County, branch line trains stalled on 7th, and on 11th roads and railroad line again drifted full. At Shoshone on 24th severe drifting blocked roads, leaving many cars stranded. Other communities farther north and also to east reported that most roads and some main highways blocked from 23d to 25th.

\* Miles instead of yards.

\*\* Yards instead of miles.

° Crop damage included with other property damage.



## GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

Record-breaking floods occurred in scattered areas throughout the United States during March. In eastern Oregon, they were the highest floods in about 40 years. At Bowling Green, Ky., the Barren River reached the highest stage since 1913. At James, Iowa, the Floyd River reached the highest stage since the gage was installed on December 4, 1934.

Mild weather during the last few days of March set the scene for the record Missouri River flood which was to follow in April.

**ST. LAWRENCE DRAINAGE.**—The spring freshet in the Lake Erie drainage caused considerable apprehension as the rivers rose close to damaging levels during the middle of March. Only minor damages resulted from the overflows as the streams crested just before reaching these damaging stages on the 13th. Another minor flood crest occurred in the St. Joseph River on the 21st, but no flooding occurred on the Maumee River as it smoothed off before reaching Fort Wayne, Ind.

The heavy rains on the 10th and 11th raised the level of the Sandusky River to a stage of 13.8 feet at Upper Sandusky, Ohio, on the 12th, 0.8 foot above flood stage. No damage was reported.

**ATLANTIC SLOPE DRAINAGE.**—The water equivalent of the snow cover in the northern half of the Merrimack Basin in New Hampshire increased during March, and at the close of the month was the highest in several years. Snow melt in the lower portion of the basin increased stream-flow but without any overflows. Practically all ice was out of the rivers by the end of the month.

Minor flooding occurred in the Susquehanna Basin during March due to snow melt and rain. The water equivalent of the snow cover on the ground on March 11 was estimated at 1.2 inches over the Chemung Basin, 0.5 inch over the Chenango Basin, and 0.6 inch over the Susquehanna Basin east of Binghamton, N. Y. Temperatures were not unusually high but snow on the ground was conditioned by above freezing temperatures and with moderate to heavy showers. The rainfall averaged 1 inch over the upper Susquehanna Basin and  $1\frac{1}{2}$  to 2 inches over the lower portion. In the Juniata and West Branch Basins, rainfall averaged 1.8 and 2.2 inches with less than 0.25 inch from additional snow melt. The damages from the overflows were relatively light, being confined chiefly to low-lying sections, public highways and bridges.

Some flooding occurred on the Lehigh River at Lehigh, Pa., on the 11th and 12th, due to heavy rain (2.75 inches) on the 10th and 11th. No damage was reported.

Light overflows occurred in the upper and lower Potomac and in the Monocacy Basin between the 11th and 14th, due to heavy rainfall during the 24-hour period ending at 7:30 a.m. on the 11th. The precipitation averaged 1.75 inches in the upper Potomac above Cumberland, Md., and 1.4 inches over the Monocacy Basin. The precipitation over the entire Potomac Basin during the 24-hour period averaged 1.3 inches. No damages resulted from the light overflows.

Moderate rises to above flood stage occurred on the James River in Virginia on the 11-14th, due to heavy rain on the 10-11th. The rainfall ranged from 2 to 4 inches in the upper James Basin. The crests ranged from 0.2 foot above flood stage at Buchanan to 4.9 feet above flood stage at Columbia, Va.

Moderate to heavy rains over eastern North

Carolina from the 2d to 4th, the 11th and 23d and 24th caused overflows along the Cape Fear, Neuse, Tar, and Roanoke Rivers. The crest of 51.9 feet on the Cape Fear at Fayetteville was the tenth highest stage of record. The stage of 23.0 feet at Goldsboro, N. C., on the Neuse, on the 10th, and the stage of 22.4 feet at Smithfield on the 6th both were within 4 feet of the highest stages of record. Very little damage resulted from the floods.

The Pee Dee River in South Carolina was in flood on three separate occasions during March. During the first rise, the Pee Dee crested at a stage of 41.2 feet at Cheraw, S. C., the highest stage since the record flood of September 1945. The Yadkin River at Wilkesboro, N. C., was in flood from March 11 through the end of the month. The Lynches and Edisto Rivers also reached the highest levels in the past several years.

Streams in the Santee River Basin were also in flood at three different times during the month. These overflows, moderate to moderately heavy, were due to heavy rains on the 4th (3.5 inches), 11th, 12th (2.5 inches), 24th and 25th (2.5 inches). Damage estimates for the three floods approximate \$25,000. In addition, \$26,000 resulted from loss of income and wages due to suspension of business in the logging industry below Camden and Columbia, S. C., on the Wateree and Congaree Rivers, where the swamps were flooded. The Chief Engineer of the South Carolina Highway Department estimates a loss of \$200,000 over the state to secondary roads and bridges, which were mostly in the Piedmont area of South Carolina where small streams were quite high, locally.

No material damage resulted from the flooding on the Savannah and Ogeechee Rivers, which overflowed three times during the month.

The heavy to excessive rains from the 3d-4th, 10-11th and 22d-25th, caused flooding along the Ocmulgee, Ocopee and Altamaha Rivers in Georgia for the greatest rise in more than 3 years. Little or no damages occurred except in the Macon and Milledgeville areas, where losses were reported at \$62,000 and \$175,000, respectively.

**EAST GULF OF MEXICO DRAINAGE.**—The rises in the Apalachicola Basin during March were the greatest in more than 3 years. The damages, however, were comparatively light and were under \$70,000. This loss was more than over compensated for in that the prolonged high water enabled logging operators to move out a very considerable quantity of logs for the lumbering industry.

Overflows occurred along all streams in the Alabama River Basin, except on the Coosa River during the beginning of the second and third decades of the month. The damages were less than \$300,000.

Heavy rains (near two inches) on the 10th and 11th caused the Warrior River to reach flood stage at Tuscaloosa, Ala., on the 12th and the Tombigbee River to overflow from Demopolis, Ala., southward. Damage was relatively light as floods are expected during this season and no crops had been planted on the land that was inundated.

Heavy rains over the middle and lower reaches of the Pearl River, on the 5th and 6th, produced sharp rises to flood stage at Bogalusa, La., on the 7th, and to near flood stage at Pearl River, La., on the 8th. No damage resulted from this rise.

**UPPER MISSISSIPPI BASIN.**—No appreciable runoff occurred in streams in the Upper Mississippi Basin



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS—Continued

MARCH 1952

above Dam 10 until the last three days of the month, when maximum temperatures suddenly rose to the low 60's causing minor floods to develop along the main stem of the Zumbro and Root Rivers in Minnesota. These overflows occurred on the last day of the month and were carried forward into April.

An abrupt rise began on the 11th on the Pecatonica River at Freeport, Ill., which extended downstream to Moline, Ill., on the Rock River from the moderately heavy rain and snow (1 inch) which had fallen over the upper portion a few days earlier. Considerable inconvenience was experienced by permanent and semi-permanent residents due to overflow of lowlands upon which cottages and other habitations are located and roads leading thereto.

Heavy snow over southern Iowa early in March followed by moderate rains on the 9th of the month caused rapid rises in streams to slightly over bankfull stage. No damage was reported along either the Des Moines or Middle Rivers.

The overflow along the Illinois River was due to snow melt and precipitation averaging nearly 0.5 inch during the latter part of the first decade. Additional rain of 0.75 inch on the 19th prolonged the rise. This rise began passing Morris, Ill., on the 11th; the stream was still in flood, but receding at Havana and Beardstown, Ill., as the month ended. The flooding along the Meramec on the 12th and 13th was due to precipitation averaging 0.5 inch in the headwaters during the 24-hour period ending on the 11th. No damage resulted from the overflows.

Minor flooding occurred along the main stem of the Mississippi River in the reach from Hannibal, Mo., to Grafton, Ill., and in the extreme lower portion at Cape Girardeau, Mo.

**MISSOURI BASIN.**—Overflows due to ice jams occurred on the 30th, 31st and April 1st along the Yellowstone River from Sidney, Mont., downstream to the confluence with the Missouri River. Most of the overflows were confined to lowlands although the river stage of 19.5 feet at Sidney early in the morning of April 1 exceeded flood stage by 0.5 foot. No loss of human life or destruction of animals has been reported but the water isolated several ranches and farms and inundated some farmland. Ice jams also occurred on the Tongue River just above Miles City, Mont., and on several small tributaries of the lower Yellowstone River between Miles City and Sidney on March 28 and 29. This resulted in damage to several railroad bridges and the loss of some cattle.

Some moderate flooding occurred along the North Fork of the Elkhorn River at Pierce, Nebr., on the 30th due to rapid snow melt. The maximum temperatures from the 27th through the 30th ranged between 50 and 75 degrees. No damage was reported.

Minor ice jams and high stages on the Milk River on March 31 necessitated the evacuation of fourteen hundred people from the northern portion of Havre, Mont., during the high water.

The flooding along the Big Sioux River in Iowa between the 18th and 24th was due to snow melt which resulted during the period of mild weather between the 15th and 20th. This thaw also caused rises on the Floyd River in Iowa and the Vermillion, James, and White Rivers in South Dakota, and the Niobraro in Nebraska, but were of little consequence. The main flooding developed as a result of the mild weather during the last 5 days of

March. The Big Sioux River rose rapidly during this period but the main damage occurred in April. There were 3 rises along the Floyd River during the month, each rise exceeding the previous one. During the last rise the Floyd reached the highest stage at James, Iowa, since the gage was installed on December 4, 1934.

The flooding on the Grand, Chariton, Lamine and Blackwater Rivers in Missouri and the Blue River in Nebraska and Kansas was due to warm weather and light rain on the 18-19th. The snow cover in Kansas and Missouri was reported as gone by the 20th.

The ice breakup on the Missouri River was fairly complete as far upstream as Vermillion, S. Dak., by March 1. Breakup was slow during the month of March. The ice moved out of the channel at Yankton, S. Dak., by the 18th. The breakup reached Springfield, S. Dak., on March 25, Geddes on March 30, and Chamberlain on April 2. No flood stages were reached at any of the gaging stations on the Missouri River in March, between Sioux City, Iowa, and Bismarck, N. Dak., but the scene was set on the last day of the month for the record breaking Missouri River flood which followed in April.

Light to moderate overflows occurred along the Marais des Cygnes between the 10th and 15th as a result of the heavy rainfall (near 1 inch) over the basin on the 10th. Snow melt played a significant role as the storm of March 2 and 3 contributed snow depths of 8 to 12 inches over the basin with a water equivalent of 1.75 inches. Most of the snow had melted before the rain of the 10th. The only flooding reported on the Big Blue River was at Barnston, Nebr., on the 19th. The rainfall over this basin averaged about the same but the water content of the snow cover was less than 1 inch.

**OHIO BASIN.**—Heavy rain on the 10th and 11th caused a rapid rise on the Scioto River to above bankfull stage at all points except at Columbus, Ohio. Another rise later in the month caused near bankfull stages above Columbus and up to or above bankfull stage below that point. No damage was reported.

The flooding on the Licking River was due to heavy rain which began falling over Kentucky on the evening of the 21st. By the morning of the 23d over 4 inches of rain had fallen over the upper portion, about 3½ inches over the central part and a little over 2 inches over the lower portion. In the headwaters at West Liberty, the Licking River was reported at a record stage; in the middle and lower reaches the river barely exceeded flood stage. Very little damage resulted.

Flooding on the Kentucky River resulted from the same storm mentioned above. The distribution of the rainfall was odd in that the heaviest and lightest amounts fell over the Cumberland Mountains where the three forks originate. The highest amount reported was a storm total of 4.41 inches at Kentucky River Lock #14, Heidelberg, Ky. The runoff over the Dix River, tributary to the Kentucky, was so great that the flood gates of Dix Dam had to be opened. This, however, did not increase the water level along the main stem at Frankfort, Ky., as the water was released some time before the arrival of the crest.

Heavy rainfall (2 to 3 inches) on March 11 produced minor overflows on the Salt River tributaries and above normal stages on the Ohio River which crested considerably below flood stage.



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS—Continued

MARCH 1952

Heavy rain on the 21st ranging from 1.51 inches at Madison, Ind., to 4.11 inches at Taylorsville, Ky., on Brashears Creek, tributary of the Salt River, produced additional flooding on the Salt River in Kentucky. Resulting damage was confined principally to flooding of lowland fields.

Moderate flood stages were experienced along the Green River in Kentucky and in the Wabash Basin in Indiana as a result of the heavy rains of the 10th and 11th, which averaged 3 inches over the Green and from 1 to 3 inches in the Wabash Basin. Additional heavy rains from the 21st to the 23d (4.5 inches on the Green) resulted in secondary flood crests along the Green, in the Wabash Basin, and overflows along the Barren and Rough Rivers in Kentucky. The crest on the Barren River at Bowling Green, Ky., was the highest since the 1913 flood. A flash flood on Garrett's Creek near Adolphus, Ky., destroyed a farm home and caused the death of seven of the nine occupants.

The storm of 22-23d caused light flooding in the upper Cumberland Basin between the 22d and 26th. The precipitation averaged 3.85 inches with several stations reporting amounts from 4 to 6 inches. At Barbourville, Ky., about 40 percent of the city was flooded. It was entirely cut off from the outside as all roads leading in and out of the city were covered by water.

Three heavy rainstorms caused minor floods in different portions of the Tennessee Basin during the month. The heavy rain (2 inches) on the 3d and 4th (30 hours) caused minor flooding along the Duck River in Tennessee. The second heavy rain on the 10th and 11th, averaging 2 inches over the Tennessee Valley, caused 1-foot overflows on Richlands Creek at Dayton, Tenn.; 6.5-foot overflows on South Chickamauga Creek at Chickamauga, Tenn. This rain also caused a minor flood on the Elk River at Fayetteville, Tenn., and along the Tennessee River at Florence and Whitesburg, Ala., and at Gilbertsville, Ky. The 3d heavy rain on the 21st and 22d, averaging 4.5 inches between Chickamauga Dam and Guntersville Dam, caused another flood of 3.5 feet on Chickamauga Creek and minor flooding at Whitesburg, Ala. No damages resulted from these overflows.

Flooding occurred along the main stem of the Ohio River from Dam No. 33, Maysville, Ky., to Cairo, Ill., due to several rainy periods during the month. The first of these rainy periods began on February 29 and ended on March 4. The amount of precipitation was not sufficient to produce a flood but it did reverse the falling tendency and cause a considerable rise. The second period occurred on the 10th and 11th and covered a large area. The precipitation was heavy, averaging 3.25 inches along the main stem from Louisville, Ky., to Cairo, Ill., and produced the first phase of the flood in the Ohio River from Paducah, Ky., to Cairo. There were frequent scattered light showers during the ten days following this storm but they did not increase flood levels to any extent. Another heavy rain (2 inches) on the 21st and 22d produced the main flooding along the Ohio. There were two distinct crests in the reach from Paducah to Cairo. Losses caused by this flood were remarkably small.

WHITE, ARKANSAS AND RED BASINS.—Minor flooding resulted in streams in the White, Arkansas and Red Basins from the heavy rain (1 to 2 inches) on

March 9 and 10. Only minor damages occurred due to the season of the year.

LOWER MISSISSIPPI AND ATCHAFALAYA BASINS.—The heavy rains over the lower Mississippi Basin on the 10th and 11th resulted in the highest water on the lower Mississippi since January-February 1950. Damages were comparatively small.

The Atchafalaya River exceeded flood stage at Morgan City, La., for several hours on the 3d, 10th and 11th due to strong onshore winds and high tides.

CALIFORNIA COAST DRAINAGE.—Minor flooding occurred in all coastal river basins south of Point Buchon, Calif., during March due to moderately heavy rain on the 7-8th and from the 14th to the 16th. Storm totals ranged from 1.5 to 4 inches in coastal areas and from 3 to 6 inches in mountain areas from the first storm. Amounts in the second storm were generally about the same although a few areas were heavier, but runoff was greater since the first storm had been preceded by a period of over a month with only about 0.5 inch of rain, while light rain had fallen on every day but one during the week between the two March storms. Much of the precipitation in the mountains was in the form of snow so that rapid runoff was confined to low level basins and overflow on small areas. Damage was chargeable to local surface runoff rather than stream overflow.

RIVERS IN THE CENTRAL VALLEYS OF CALIFORNIA.—Light overflows occurred along the Sacramento River at Colusa Weir, Tisdale Weir and Fremont Weir due to frequent heavy rains during the month. This was the fifth consecutive month with above normal precipitation.

COLUMBIA BASIN.—The Malheur River reached a stage of 11.23 feet at Vale, Oreg., on the 26th, 6.23 feet higher than the previous highest reading of 5 feet on March 1, 1946. This flooding was due almost entirely to melting snows at lower and intermediate elevations along the Malheur and its tributaries below Warm Springs Reservoir. Direct contribution by precipitation appears to have been minor. There was also some flooding along bottom lands on the lower stretches of the Weiser River.

Light to moderately heavy rainfall accompanied by a short period of seasonably warm temperatures beginning on the 23d in western Oregon and continuing through March 26 caused slight flooding in the Willamette River at Harrisburg, Oreg., and on the Santiam River at Jefferson, Oreg. This same storm and warm temperatures resulted in damaging floods in the Prineville section of eastern Oregon near the headwaters of Crooked River and at Burns, Oreg., near the northern end of Malheur Lake. Precipitation at the intermediate elevation on the western slope of the Cascades was heavier than elsewhere. Several stations reported more than 2 inches for the 24-hour period ending the morning of the 24th. At a few stations the amounts were near 3 inches. Valley precipitation was light. Snow melt in the Willamette Basin is credited with near 50 percent of the freshet or flood producing water in this basin. In the Prineville and Burns areas melting snow was the principal cause of flooding. There was no known damage in the Willamette Basin, except the usual erosion accompanying freshets. There was some damage in the Prineville and Burns areas and locally in other small localities.



# FLOOD STAGE DATA

(All dates in March unless otherwise specified)

Table 5

MARCH 1952

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
ST. LAWRENCE DRAINAGE	<i>Ft</i>			<i>Ft</i>	
St. Marys: Decatur, Ind.	13	11	16	18.9	13
St. Joseph: Montpelier, Ohio	10	12	14	12.0	13
		20	22	11.1	21
Maumee:					
Fort Wayne, Ind.	15	12	16	17.2	13
Defiance, Ohio	10	13	14	11.6	13
Napoleon, Ohio	10	13	14	10.7	13
Sandusky: Upper Sandusky, Ohio	13	12	12	13.8	12
ATLANTIC SLOPE DRAINAGE					
Lehigh: Lehigh, Pa.	■	11	12	10.3	11
Tioughnioga: Whitney Point, N.Y.	12	11	11	12.7	11
Chenango:					
Sherburne, N.Y.	8	11	11	9.3	11
		27	27	8.2	27
Greene, N.Y.	8	12	12	9.8	12
Chemung:					
Elmira, N.Y.	12	11	12	14.5	12
Chemung, N.Y.	12	11	12	17.2	12
Frankstown Branch: Williamsburg, Pa.	12	11	11	12.9	11
Susquehanna:					
Oneonta, N.Y.	12	11	12	13.1	12
		22	22	12.1	22
		26	27	12.9	27
Conklin, N.Y.	11	11	12	13.4	12
Vestal, N.Y.	18	12	12	18.3	12
Towanda, Pa.	16	12	12	17.6	12
Wilkes-Barre, Pa.	22	13	13	22.5	13
North Branch: Cumberland, Md.	17	11	11	17.0	11
Monocacy: Frederick, Md.	15	12	12	17.0	12
Potomac: Washington (nr.), D.C.	10	12	14	11.9	13
James:					
Buchanan, Va.	17	12	12	17.2	12
Bremo Bluff, Va.	19	12	13	22.2	13
Columbia, Va.	18	12	13	22.9	12
State Farm, Va.	12	12	14	15.5	13
Richmond, Va.	8	13	14	9.7	14
Roanoke:					
Altavista, Va.	18	11	13	19.6	12
Randolph, Va.	21	23	26	21.6	25
Weldon, N.C.	31	4	8	31.8	7
		13	16	31.4	15
		24	31	34.0	28
Scotland Neck, N.C.	28	5	10	29.1	8
		14	17	28.2	16
		26	Apr. 2	30.1	30
Williamston, N.C.	10	Feb. 29	**	11.0	8
				11.3	11
				11.2	18
				11.0	26
				11.2	31
Tar:					
Rocky Mount, N.C.	9	2	10	10.0	6
Tarboro, N.C.	18	3	--	--	--
Greenville, N.C.	13	1	15	16.8	9
Neuse:					
Neuse, N.C.	14	2	10	19.4	7
		12	14	14.1	13
		24	28	16.3	27
Smithfield, N.C.	13	Feb. 29	2	13.2	1
		2	16	22.4	6
		24	30	16.2	26
				15.8	28
Goldsboro, N.C.	14	Feb. 29	19	23.0	10
		25	Apr. 3	16.3	31
Kinston, N.C.	14	3	22	19.2	14
		30	Apr. 3	14.6	Apr. 2
Cape Fear:					
Moncure, N.C.	20	■	7	26.9	4
Fayetteville, N.C.	35	4	■	51.9	6
		24	27	37.9	26
Lock No. 2, Elizabethtown, N.C.	20	Feb. 28	16	20.5	1
ATLANTIC SLOPE DRAINAGE (Cont'd.)	<i>Ft</i>				
Cape Fear: (Cont'd.)					
Lock No. 2, Elizabethtown, N.C. (Cont'd.)				20.6	3
				34.2	7
				23.5	13
				28.9	27
Lynchess: Effingham, S.C.	14	11	12	14.6	11
Pee Dee:					
Cheraw, S.C.	30	4	7	41.2	5-6
		12	13	32.6	13
		25	27	38.0	26
Peedee, S.C.	19	5	Apr. 5	26.1	10
				22.9	15, 16
				24.0	30
Saluda:					
Pelzer, S.C.	6	4	7	10.5	5
		11	15	11.0	12
		22	30	12.5	24
Chappells, S.C.	13	4	7	22.8	5
		11	14	18.7	13
		24	27	24.8	24
Broad:					
Gaffney (nr.), S.C.	10	4	5	12.3	4
		11	12	11.3	12
		24	25	11.6	24
Blairs, S.C.	14	4	7	26.6	5
		11	14	22.0	13
		24	27	25.2	25
Congaree: Columbia, S.C.	19	5	■	23.2	6
		25	26	22.3	26
Catawba:					
Catawba, N.C.	8	11	12	12.2	12
		24	25	10.6	25
Rock Hill, S.C.	17	4	4	17.0	4
Wateree: Camden, S.C.	23	5	7	31.4	5
		13	14	23.5	13
		25	28	27.5	25
North Fork: Orangeburg, S.C.	8	5	7	8.1	6
		15	15	8.0	15
		25	28	8.6	25
Edisto: Givhens Ferry, S.C.	10	17	21	10.2	18, 19
		27	Apr. 7	11.3	Apr. 2
Broad: Carlton, Ga.	15	4	5	18.7	4
		11	13	20.0	12
		24	25	19.4	24
Savannah:					
Butler Creek, Ga.	21	5	7	21.4	5
		26	26	21.0	26
Clyo, Ga.	11	9	**	16.6	16, 21-23
Ogeechee:					
Midville, Ga.	6	■	11	7.6	9
		28	30	6.5	30
Dover, Ga.	7	11	18	9.0	13
		20	23	7.2	21
		26	**	7.9	30
Ocmulgee:					
Macon, Ga.	18	4	6	23.8	5
		12	13	19.0	12
		24	26	21.3	25
Hawkinsville, Ga.	25	8	10	26.6	9
		28	29	25.7	29
Abbeville, Ga.	11	9	22	14.6	11
		28	Apr. 4	14.1	30, 31
Lumber City, Ga.	15	14	18	16.8	15
Oconee:					
Milledgeville, Ga.	20	4	7	33.6	5
		11	16	23.3	12
		24	28	28.0	25
Dublin, Ga.	21	7	12	26.5	9
		16	17	21.1	17
		27	31	24.6	29
Mount Vernon, Ga.	16	9	14	19.9	12
		16	23	17.4	19, 20
		29	Apr. 4	18.9	31
Altamaha: Charlotte, Ga.	12	1	**	20.9	15
EAST GULF OF MEXICO DRAINAGE					
Chattahoochee:					
Norcross, Ga.	16	11	13	19.9	12
		23	25	17.9	25
Eufaula, Ala.	40	25	26	42.2	26
Flint:					
Montezuma, Ga.	20	7	■	20.5	■



# FLOOD STAGE DATA

(All dates in March unless otherwise specified)

Table 5-Continued

MARCH 1952

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
EAST GULF OF MEXICO DRAINAGE (Cont'd.)	<i>ft</i>			<i>ft</i>	
Flint: (Cont'd.)					
Albany, Ga.	20	9	14	22.1	12
		28	31	23.5	30
Apalachicola:					
Chattahoochee, Fla.	20	27	30	20.9	29
Blountstown, Fla.	15	Feb. 29	**	20.7	10
				20.9	16
				21.5	29,30
Oostanaula:					
Resaca, Ga.	22	13	14	23.9	13
		25	26	24.2	25
Rome, Ga.	25	23	25	25.4	24
Etowah: Canton, Ga.	17	11	12	21.3	11
		23	24	23.3	23
Coosa: Gadsden, Ala.	20	13	17	22.1	14
		25	28	20.7	26-27
Alabama:					
Montgomery, Ala.	35	27	27	35.4	27
Millers Ferry, Ala.	40	28	30	40.9	29
Black Warrior:					
Tuscaloosa Lock and Dam, Ala.	47	12	12	47.0	12
Tombigbee:					
Lock No. 4, Demopolis, Ala.	39	14	18	43.2	16
Lock No. 3, Ala.	33	4	9	40.4	6
		12	28	44.8	17
Lock No. 2, Ala.	46	16	18	46.6	17
Lock No. 1, Ala.	31	16	22	32.7	19-20
Pearl: Bogalusa, La.	15	7	7	15.0	7
		13	17	16.3	15
		21	24	15.6	21
MISSISSIPPI SYSTEM Upper Mississippi Basin					
Pecatonica: Freeport, Ill.	14	14	15	14.2	14
Rock: Moline, Ill.	13	16	17	13.0	16-17
Iowa: Wapello, Iowa	10	13	16	12.0	14
Skunk: Augusta, Iowa	15	13	14	15.8	13
		19	19	15.0	19
Middle: Indianola, Iowa	15	13	13	15.0	13
Des Moines:					
Tracy, Iowa	14	12	14	14.9	13
Eddyville, Iowa	15	12	15	17.7	13,14
		19	20	15.7	19
Ottumwa, Iowa	9	12	15	11.3	13
		20	20	9.4	20
		24	24	9.1	24
Salt: New London, Mo.	19	19	19	19.0	19
Illinois:					
La Salle, Ill.	20	19	25	21.5	20
Peoria, Ill.	18	24	27	18.5	25
Havana, Ill.	14	18	**	16.2	26
Beardstown, Ill.	14	19	**	17.1	28
Meramec:					
Pacific, Mo.	11	12	13	13.6	13
Valley Park, Mo.	14	13	13	14.6	13
Mississippi:					
Bannibal, Mo.	16	14	21	16.8	16
		25	25	16.5	19
				16.0	25
Louisiana, Mo.	15	14	22	16.1	20
Grafton, Ill.	18	20	24	18.5	21-23
Cape Girardeau, Mo.	32	18	27	32.8	24
Missouri Basin					
Yellowstone: Sidney, Mont.	17	--	--	19.5	Apr. 1
Big Sioux: Akron, Iowa	12	18	24	16.2	22
		29	**	---	--
Floyd:					
James, Iowa	16	12	14	17.2	13
		18	22	18.7	20
		30	Apr. 2	20.3	31
Merrill, Iowa	12	19	20	13.0	20
		30	Apr. 1	14.9	30
N. Fork Elkhorn: Pierce (nr.), Nebr.	12	30	30	12.4	30
MISSISSIPPI SYSTEM (Cont'd.) Missouri Basin (Cont'd.)	<i>ft</i>			<i>ft</i>	
Big Blue: Barnston, Nebr.	18	19	19	19.0	19
Stranger Creek: Tonganoxie, Kans.	23	10	12	24.4	12
Blue: Kansas City, Mo. (Bannister Rd.)	21	10	10	22.9	10
Grand:					
Pattonsburg, Mo.	25	11	12	26.3	11
Chillicothe, Mo.	24	10	14	27.7	12
Sumner, Mo.	26	10	16	31.9	13
		20	21	28.7	20
Brunswick, Mo.	12	11	17	16.9	15
		20	24	13.5	21
Chariton: Novinger, Mo.	20	10	27	23.9	13
Blackwater: Blue Lick, Mo.	25	11	13	27.7	13
Lamine: Clifton City, Mo.	15	11	11	18.0	11
Marais des Cygnes:					
Quenemo, Kans.	28	10	11	32.7	11
Ottawa, Kans.	23	10	12	25.2	11
Osawatimie, Kans.	28	10	13	33.4	12
La Cygne, Kans.	25	10	14	29.3	13
Trading Post, Kans.	24	11	15	26.5	14
Ohio Basin					
Paint Creek: Bourneville, Ohio	10	11	12	12.6	11
		22	23	13.0	22
Scioto:					
La Rue, Ohio	11	11	13	13.3	12
Prospect, Ohio	10	12	14	11.3	13
Circleville, Ohio	14	11	14	16.1	13
		24	24	14.5	24
Chillicothe, Ohio	16	13	13	16.4	13
Piketon, Ohio	15	12	15	17.6	14
		23	25	18.6	23
South Fork: Cynthiana, Ky.	20	23	23	20.2	23
Licking:					
Farmers, Ky.	25	23	24	25.1	24
Falmouth, Ky.	28	23	24	29.7	23
North Fork: Jackson, Ky.	29	22	24	34.5	23
Kentucky: Lock No. 4, Frankfort, Ky.	31	23	27	33.1	26
Rolling Fork: Boston, Ky.	38	11	14	40.7	13
		22	27	45.2	24
Salt: Taylorsville, Ky.	20	11	11	26.4	11
		23	23	28.1	22
Barren: Bowling Green, Ky.	28	23	26	45.1	24
Rough: Dundee, Ky.	25	23	25	28.9	24
Green:					
Munfordville, Ky.	28	23	27	48.2	25
Lock No. 4, Woodbury, Ky.	33	11	16	39.3	14
		22	31	49.9	26
Lock No. 2, Rumsey, Ky.	34	13	**	---	--
West Fork:					
Muncie, Ind.	6	12	12	6.4	12
Anderson, Ind.	10	12	13	13.2	12
		23	23	10.0	23
Spencer, Ind.	14	12	16	17.2	14
		23	25	15.2	24
Ellistown, Ind.	18	12	17	23.5	15
		20	27	21.6	25
Edwardsport, Ind.	12	11	**	20.0	16
East Fork:					
Seymour, Ind.	14	12	12	14.1	12
		23	24	16.5	23
Bedford, Ind.	20	26	27	20.6	26
White:					
Petersburg, Ind.	16	12	31	21.5	18
Hazleton, Ind.	16	--	--	22.2	19
Wabash:					
Bluffton, Ind.	10	11	14	14.0	13
Wabash, Ind.	12	11	15	19.3	12



# FLOOD STAGE DATA

(All dates in March unless otherwise specified)

Table S-Continued

MARCH 1952

River and station	Flood stage	Above flood stages -dates		Crest *	
		From--	To--	Stage	Date
<b>MISSISSIPPI SYSTEM (Cont'd.)</b>	<b>Ft.</b>			<b>Ft.</b>	
<u>Ohio Basin (Cont'd.)</u>					
Wabash: (Cont'd.)					
Lafayette, Ind.	11	12	16	18.9	14
		20	22	14.4	20
		24	25	11.9	24
Covington, Ind.	16	13	18	22.0	15
		21	23	17.8	22
Montezuma, Ind.	14	12	27	20.9	16
Terre Haute, Ind.	14	13	27	17.3	18
Putsonville, Ill.	20	19	25	21.2	19, 20
Riverton, Ind.	18	19	24	18.6	20
Vincennes, Ind.	16	19	29	19.5	23
Mt. Carmel, Ill.	17	13	Apr. 1	22.0	25
New Harmony, Ind.	15	16	Apr. 2	17.6	27
<b>Cumberland:</b>					
Williamsburg, Ky.	21	23	26	24.9	23
Clarksville, Tenn.	46	23	26	47.9	24
Pineville, Ky. (Ky. Utilities Gage)	995	22	24	998.6	23
Lock F, Eddyville, Ky.	50	13	15	50.5	15
		22	31	57.0	27
Richlands Creek: Dayton, Tenn.	8	10	11	9.0	10
South Chickamauga Creek: Chickamauga, Tenn.	10	10	13	16.6	12
		21	24	13.4	22
Duck: Centerville, Tenn.	22	4	4	22.1	4
<b>Tennessee:</b>					
Whitesburg, Ala.	560	11	15	565.3	13
		23	26	561.6	24
Florence, Ala.	18	12	13	19.1	12
Gilbertsville, Ky.	31	12	**	43.4	26
<b>Ohio:</b>					
Dam No. 33, Maysville, Ky.	50	25	26	50.4	26
Cincinnati, Ohio	52	26	26	52.0	26
Madison, Ind.	46	26	27	46.2	27
Louisville, Ky. Upper gage	28	26	29	30.0	28
Lower gage	55	26	29	56.8	28
Dam No. 43, Evans Landing, Ind.	57	26	29	58.1	28
Dam No. 44, Leavenworth, Ind.	53	25	30	57.8	28
Dam No. 45, Addison, Ky.	47	25	30	50.2	28
Tell City, Ind.	38	25	Apr. 1	43.6	29
Dam No. 46, Owensboro, Ky.	41	27	31	42.2	28
Dam No. 47, Newburgh, Ind.	38	24	Apr. 3	44.6	29
Evansville, Ind.	42	28	31	42.4	30
Dam No. 48, Henderson, Ky.	38	24	Apr. 4	44.6	30
Mt. Vernon, Ind.	35	18	**	42.5	31
Dam No. 49, Uniontown, Ky.	37	18	**	44.5	31
Shawneetown, Ill.	33	14	**	-----	--
Dam No. 50, Fords Ferry, Ky.	34	13	**	48.0	31
Dam No. 51, Golconda, Ill.	40	23	Apr. 5	44.7	Apr. 1
Paducah, Ky.	39	15	18	39.8	17
		22	Apr. 5	43.9	27
Dam No. 52, Brookport, Ill.	37	13	Apr. 7	41.8	17
				45.9	27
Dam No. 53, Mound City, Ill.	42	13	**	48.0	17
				51.5	27
Cairo, Ill.	40	13	**	47.5	17
				50.7	27
<u>White Basin</u>					
<b>Black:</b>					
Poplar Bluff, Mo.	16	12	12	16.1	12
Black Rock, Ark.	14	11	**	23.3	12
				21.3	23
<b>Little Red: Judsonia, Ark.</b>	30	12	13	33.5	13
<b>White:</b>					
Batesville, Ark.	23	12	12	25.0	12

River and station	Flood stage	Above flood stages -dates		Crest *	
		From--	To--	Stage	Date
<b>MISSISSIPPI SYSTEM (Cont'd.)</b>	<b>Ft.</b>			<b>Ft.</b>	
<u>White Basin (Cont'd.)</u>					
White: (Cont'd.)					
Augusta, Ark.	32	14	19	32.3	20
		24	**	32.3	31
Georgetown, Ark.	21	15	**	22.1	24
				22.2	Apr. 1
Des Arc, Ark.	24	18	**	24.9	27
Clarendon, Ark.	26	15	**	28.5	Apr. 1
St. Charles, Ark.	25	18	**	27.5	Apr. 4
<u>Arkansas Basin</u>					
Verdigris: Independence, Kans.	30	11	11	30.7	11
Neosho:					
Iola, Kans.	15	10	11	15.9	11
Chanute, Kans.	20	11	11	20.0	11
Oswego, Kans.	17	12	13	17.0	12
Poteau: Poteau, Okla.	24	10	11	24.8	10
<u>Red Basin</u>					
Ouachita:					
Arkadelphia, Ark.	17	12	13	17.8	13
Camden, Ark.	26	14	17	28.3	15
<u>Lower Mississippi Basin</u>					
St. Francis:					
Fisk, Mo.	20	12	30	23.7	14
				23.1	25
St. Francis, Ark.	18	11	12	18.3	12
		13	**	20.7	17, 19
Coldwater: Sarab, Miss.	18	10	11	20.9	11
Tallahatchie: Swan Lake, Miss.	26	13	Apr. 1	27.3	22
<b>Mississippi:</b>					
New Madrid, Mo.	34	15	**	40.2	28
Caruthersville, Mo.	32	15	**	38.8	29
Memphis, Tenn.	34	23	**	37.1	Apr. 1
Helena, Ark.	44	29	**	45.4	Apr. 2
<u>Atchafalaya Basin</u>					
Atchafalaya: Morgan City, La.	6	3	3	6.4	3
		10	11	6.5	10
<b>PACIFIC SLOPE DRAINAGE</b>					
<u>Sacramento Basin</u>					
Sacramento:					
Colusa Weir	61.8	16	9	62.3	8
			21	63.8	16
Tisdale Weir	45.5	1	3	46.0	1
		7	**	48.2	17
Fremont Weir	33.8	9	10	33.9	9
		16	23	35.2	19
		31	**	-----	--
<u>Columbia Basin</u>					
Santiam: Jefferson, Oreg.	13	25	25	13.8	25
Willamette: Harrisburg, Oreg.	12	25	25	13.1	25

\* Provisional.

\*\* Continued at end of month.



# RADIOSONDE DATA

Average monthly values

Table 20

MARCH 1952

ALBUQUERQUE, N. MEX. ( 832 MB. )				ATLANTA, GA. ( 980 MB. )				BIG SPRING, TEX. ( 922 MB. )				BISMARCK, N. DAK. ( 955 MB. )				BOISE, IDAHO ( 912 MB. )				BROWNSVILLE, TEX. (1011 MB. )				BUFFALO, N. Y. ( 989 MB. )							
Standard pressure surface (mb.)																															
Number of observations				Dynamic height				Temperature				Relative humidity				Number of observations				Dynamic height				Temperature				Relative humidity			
SURFACE				31	1,620	6.6	41	31	307	10.4	61	31	784	12.3	33	31	505	- 8.2	85	31	868	2.8	71	31	6	19.8	76	31	221	- 0.5	80
1,000				31	77			31	137			31	91			31	152			31	114			31	105	19.6	74	31	132		
950				31	521			31	530			31	530			31	551	- 8.6	80	31	540			31	551	18.0	71	31	547	- 1.7	71
900				31	969			31	1,017	9.8	48	31	986	12.2	33	31	969	- 8.0	76	31	976	3.4	65	31	1,008	16.1	56	31	972	- 3.7	72
850				31	1,442			31	1,490	7.7	45	31	1,462	9.6	33	31	1,414	- 7.4	65	31	1,438	- 7	58	31	1,492	15.0	42	31	1,422	- 4.9	66
800				31	1,941	4.8	38	31	1,988	6.0	39	31	1,963	6.6	35	31	1,885	- 8.1	57	31	1,922	- 2.7	59	31	2,004	13.2	42	31	1,897	- 6.5	62
750				31	2,465	- 4.4	42	31	2,522	3.6		31	2,490	2.8	37	31	2,390	- 9.9	54	31	2,433	- 6.3	63	31	2,554	11.0	37	31	2,403	- 8.8	56
700				31	3,011	- 4.4	46	31	3,071	- 7	40	31	3,043	- 7	33	31	2,914	- 12.4	49	31	2,966	- 9.9	65	31	3,117	8.3	35	31	2,932	- 11.0	51
650				31	3,593	- 8.7	51	31	3,670	- 2.7	38	31	3,636	- 4.3	30	31	3,484	- 15.5	48	31	3,540	- 13.4	65	31	3,729	4.5	35	31	3,504	- 13.4	47
600				31	4,206	- 12.9	53	31	4,293	- 6.2	38	31	4,257	- 8.7	32	31	4,077	- 18.6	46	31	4,139	- 16.6	57	31	4,372	- 4	37	31	4,105	- 16.2	44
550				31	4,865	- 17.5	51	31	4,975	- 10.8		30	4,933	- 13.0		31	4,724	- 22.4	46	31	4,791	- 21.0	54	31	5,062	- 5.6	37	31	4,757	- 19.9	46
500				31	5,569	- 22.5	47	31	5,694	- 15.6		30	5,649	- 17.9		31	5,413	- 27.2	43	31	5,485	- 25.8	52	31	5,802	- 10.4	33	31	5,454	- 24.4	45
450				31	6,340	- 28.2	44	29	6,483	- 21.3		30	6,432	- 23.1		31	6,167	- 32.8	41	31	6,297	- 31.3	50	31	6,616	- 15.8	38	31	6,217	- 29.3	43
400				31	7,170	- 34.2		29	7,336	- 27.0		30	7,283	- 28.7		31	6,983	- 38.9		31	7,064	- 37.5	45	30	7,484	- 21.8	42	31	7,048	- 34.7	41
350				31	8,093	- 39.6		29	8,285	- 33.7		29	8,224	- 35.5		31	7,884	- 46.0		31	7,965	- 44.2		30	8,451	- 29.3	45	30	7,972	- 41.1	
300				31	9,133	- 45.7		29	9,348	- 41.4		29	9,279	- 43.0		31	8,892	- 53.6		30	8,993	- 50.2		29	9,535	- 37.2	44	29	9,005	- 46.9	
250				30	10,329	- 52.3		28	10,562	- 50.1		28	10,487	- 50.6		29	10,058	- 56.8		30	10,168	- 55.3		29	10,767	- 47.0		28	10,203	- 51.3	
200				30	11,753	- 57.4		25	12,089	- 50.1		28	11,918	- 55.9		28	11,585	- 58.6		30	12,155	- 57.1		28	12,511	- 57.1		28	11,632	- 53.1	
175				28	12,597	- 56.1		24	12,820	- 60.1		27	12,762	- 57.7		27	12,344	- 52.3		30	12,435	- 55.2		27	13,044	- 61.5		19	12,476	- 51.7	
150				26	13,574	- 57.0		23	13,782	- 59.8		26	13,724	- 58.8		27	13,342	- 51.6		29	13,424	- 53.6		27	13,989	- 65.5		17	13,468	- 51.0	
125				25	14,726	- 58.6		19	14,910	- 61.9		25	14,858	- 60.9		24	14,522	- 52.0		28	14,596	- 53.6		22	15,084	- 68.5		15	14,638	- 51.5	
100				24	16,118	- 60.1		16	16,289	- 64.0		25	16,234	- 64.1		22	15,963	- 52.8		27	16,020	- 54.2		16	16,395	- 71.8		12	16,074	- 54.3	
80				21	17,505	- 60.1		15	17,651	- 65.8		19	17,591	- 64.8		17	17,401	- 53.1		26	17,453	- 54.9		8	17,726	- 72.9		11	17,497	- 54.5	
60				19	19,300	- 59.9		10	19,403	- 63.0		13	19,349	- 62.7		15	19,260	- 52.9		24	19,293	- 54.8		6	19,415	- 65.9		9	19,336	- 55.5	
50				19	20,440	- 59.0		9	20,532	- 61.2		12	20,472	- 62.3		15	20,433	- 53.9		21	20,461	- 55.1		5	20,534	- 60.1		8	20,490	- 55.9	
40				12	21,828	- 58.1					10	21,861	- 58.7		9	21,894	- 53.2		17	21,894	- 54.6										
30				6	23,689	- 54.6					9	23,688	- 55.7		7	23,720	- 53.3		15	23,740	- 53.7										
20				5	26,340	- 51.8												8	26,356	- 52.1											
BURBANK, ILL. (1015 MB. )				CARLISLE, ME. ( 990 MB. )				CHARLESTON, S. C. (1015 MB. )				COLUMBIA, MO. ( 985 MB. )				DODGE CITY, KANS. ( 921 MB. )				EL PASO, TEX. ( 877 MB. )				ELY, NEV. ( 803 MB. )							
SURFACE				31	3	15.1	87	31	191	- 4.0	73	31	13	13.0	74	31	239	3.9	68	31	792	2.3	74	31	1,195	11.9	34	31	1,908	- 3.7	77
1,000				31	131	16.8	72	31	109	- 2.2		31	137	14.6	62	31	112			31	112			31	78			31	135		
950				31	570	14.9	58	31	519	- 4.7	67	31	576	12.9	54	31	534	3.7	61	31	533			31	522			31	560		
900				31	1,023	13.4	46	31	1,039	- 7.7	72	31	1,023	10.4	52	31	1,068	- 1.8	59	31	1,073	3.2	64	31	1,080			31	995		
850				31	1,504	12.4	41	31	1,382	- 8.9	71	31	1,497	8.6	42	31	1,428	- 3.1	62	31	1,437	2.2	65	31	1,455	11.5	29	31	1,451		
800				31	2,010	10.6	41	31	1,850	- 9.7	65	31	1,997	6.6	38	31	1,911	- 1.9	63	31	1,925	1.0	52	31	1,958	7.4	32	31	1,937	- 2.2	69
750				31	2,551	8.2	38	31	2,353	- 11.1	57	31	2,529	4.1	36	31	2,431	- 3.9	59	31	2,444	- 2.3	49	31	2,491	3.1	35	31	2,451	- 4.6	66
700				31	3,112	5.2	40	31	2,874	- 13.5	52	31	3,063	1.3		31	2,965	- 6.8	55	31	2,985	- 5.4	46	31	3,039	- 1.0	34	31	2,987	- 8.4	66
650				31	3,718	2.1	31	3,442	- 15.8	46	31	3,679	- 2.1		31	3,549	- 9.7	48	31	3,567	- 8.9	42	31	3,633	- 5.4	35	31	3,564	- 12.2	67	
600				31	4,355	- 1.9	32	31	4,035	- 18.6	43	31	4,308	- 6.0		31	4,154	- 12.9	44	31	4,178	- 13.1	41	31	4,248	- 9.5	32	31	4,165	- 15.8	62
550				30	5,043	- 6.8	32	31	4,686	- 22.5	40	31	4,986	- 10.3		31	4,820	- 17.1	42	31	4,837	- 17.3	41	29	4,922	- 13.5		31	4,820	- 19.8	55
500				30	5,777	- 12.2	33	30	5,374	- 26.6	39	30	5,710	- 15.3		31	5,520	- 22.0	41	31	5,542	- 22.4	39	28	5,632	- 18.5		31	5,517	- 24.8	54
450				30	6,577	- 17.8	31	30	6,133	- 31.7		30	6,501	- 20.8		30	6,296	- 27.6	38	31	6,311	- 27.6	37	28	6,412	- 23.5		31	6,280	- 30.1	51
400				29	7,446	- 24.1	36	30	6,951	- 37.5	40	30	7,359	- 26.5		30	7,121	- 33.6		31	7,145	- 33.5	38	28	7,261	- 29.6		31	7,104	- 35.8	47
350				29	8,407	- 30.9	41	30	7,861	- 43.4		30	8,310	- 33.6		30	8,044	- 40.0		30	8,072	- 40.4		27	8,198	- 36.1		31	8,018	- 42.7	
300				29	9,484	- 38.5	40	29	8,879	- 49.2		30	9,373	- 41.3		30	9,080	- 47.2		30	9,106	- 47.2		27	9,252	- 43.4		31	9,042	- 49.1	



Average monthly values

MARCH 1952

These average values for standard pressure surfaces were obtained by radiosondes: dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.



# RADIOSONDE DATA

Average monthly values

Table 20—Continued

MARCH 1952

**SAN JUAN, P. R. (1015 MB.)				SANTA MARIA, CALIF. (1008 MB.)				S. STE. MARIE, MICH. (989 MB.)				SPOKANE, WASH. (927 MB.)				SWAN ISLAND, W. I. (1012 MB.)				TACUBAYA, MEXICO (772 MB.)				TAMPA, FLA. (1016 MB.)							
Standard pressure surface (mb.)																															
Number of observations				Dynamic height				Temperature				Relative humidity				Number of observations				Dynamic height				Temperature				Relative humidity			
SURFACE				31	19	22.5	78	31	71	9.7	79	31	221	-4.7	78	31	722	2.6	72	31	10	25.7	80	31	2,306	19.1	32	31	9	18.5	80
1,000				31	150	23.6	77	31	133	9.8	75	31	135			31	104			31	119	25.1	80	31	11		31	143	19.0	75	
950				31	598	20.4	79	30	569	8.4	69	31	543	-4.9	68	31	526			31	576	22.0	78	31	483		31	591	17.7	68	
900				31	1,063	17.0	81	30	1,006	6.2	65	31	963	-7.2	69	31	963	3.1	59	31	1,038	19.5	67	31	964		31	1,045	15.3	67	
850				31	1,549	14.5	75	30	1,472	3.3	62	31	1,407	-8.7	68	31	1,423	-3.3	59	31	1,528	17.0	54	31	1,462		31	1,529	13.3	58	
800				31	2,061	12.8	57	30	1,961	8	53	31	1,876	-10.0	66	31	1,905	-3.9	62	31	2,044	15.0	40	31	1,998		31	2,037	11.3	47	
750				31	2,604	10.9	42	30	2,485	-1.5	43	31	2,380	-11.4	58	31	2,413	-7.4	64	31	2,596	13.4	25	31	2,557	17.8	29	31	2,586	9.0	34
700				31	3,174	8.3	34	30	3,023	-4.8	38	31	2,899	-13.2	54	31	2,944	-10.9	59	31	3,166	10.8		31	3,137	13.4	31	3,142	6.1	35	
650				31	3,793	6.0		30	3,607	-7.9	30	31	3,470	-16.0	54	31	3,515	-14.4	54	31	3,784	7.6		31	3,762	8.6	33	31	3,754	2.5	35
600				31	4,434	2.7		30	4,230	-11.4		31	4,061	-19.0	53	31	4,112	-17.8	51	31	4,433	3.7		30	4,413	3.6	36	31	4,388	-1.3	35
550				31	5,135	-1.5		30	4,886	-15.6	36	30	4,714	-22.7	51	31	4,761	-22.1	52	31	5,135	-5		30	5,116	-2.0	37	31	5,081	-5.7	36
500				31	5,885	-6.1		30	5,594	-20.7	36	30	5,404	-27.1	49	31	5,451	-26.9	50	31	5,889	-5.2		30	5,864	-6.9		31	5,817	-10.6	33
450				31	6,710	-12.0		30	6,366	-26.3	35	30	6,160	-32.4	45	31	6,205	-32.0	49	31	6,714	-10.5		30	6,692	-11.6		30	6,627	-16.0	33
400				31	7,591	-18.6		30	7,207	-32.0		30	6,977	-38.3	46	31	7,025	-38.0	46	31	7,604	-17.3		30	7,574	-17.7		30	7,495	-22.0	34
350				31	8,572	-26.0		30	8,136	-38.6		30	7,882	-44.8		31	7,930	-44.6		31	8,590	-24.6		29	8,559	-25.2		30	8,463	-28.9	37
300				31	9,669	-34.4		29	9,180	-45.8		30	8,897	-51.1		31	8,946	-50.7		31	9,694	-33.0		29	9,656	-34.1		30	9,547	-36.8	40
250				30	10,921	-43.1		29	10,373	-53.4		30	10,072	-54.0		31	10,121	-54.8		31	10,950	-42.7		18	10,905	-44.5		30	10,782	-46.5	
200				30	12,391	-53.9		29	11,788	-58.9		28	11,501	-52.4		31	11,546	-54.5		31	12,420	-53.9		16	12,370	-55.1		28	12,226	-56.7	
175				30	13,236	-59.7		28	12,632	-59.2		28	12,366	-51.2		31	12,401	-53.3		31	13,265	-60.2		14	13,218	-60.9		28	13,063	-60.8	
150				30	14,186	-65.7		28	13,598	-58.5		25	13,364	-51.1		31	13,397	-51.5		31	14,211	-66.4		14	14,162	-66.9		28	14,013	-64.2	
125				29	15,279	-71.3		28	14,742	-59.1		28	14,549	-52.0		30	14,582	-52.0		28	15,296	-71.7		28	15,246	-71.7		25	15,121	-68.3	
100				26	16,581	-77.1		28	16,134	-61.0		21	15,988	-53.2		30	16,023	-53.1		24	16,589	-78.2		22	16,444	-78.2		22	16,444	-72.2	
80				25	17,855	-78.7		27	17,513	-61.3		20	17,423	-54.1		28	17,464	-53.4		27	17,853	-80.8		17	17,853	-80.8		18	17,744	-73.0	
60				23	19,509	-73.4		22	19,313	-59.5		16	19,262	-54.0		23	19,323	-53.3		23	19,323	-53.3		12	19,477	-75.1		12	19,442	-68.5	
50				23	20,593	-66.5		21	20,454	-57.6		15	20,432	-54.1		17	20,454	-54.1		19	20,497	-53.5		10	20,552	-68.3		11	20,545	-64.1	
40				22	21,962	-61.8		21	21,868	-55.7		13	21,858	-55.0		17	21,929	-53.7		10	21,912	-63.2		10	21,912	-63.2		11	21,923	-58.5	
30				21	23,762	-57.6		18	23,722	-54.4		7	23,688	-54.1		11	23,800	-52.5		9	23,688	-59.6		8	23,688	-59.6		8	23,728	-55.5	
20				16	26,367	-50.0		9	26,360	-51.3						5	26,436	-50.9													
15				12	28,261	-46.8																									

TATOOSH ISLAND, WASH. (1010 MB.)				VERACRUZ, MEXICO (1008 MB.)				WASHINGTON, D. C. (1006 MB.)							
Number of observations				Dynamic height				Temperature				Relative humidity			
SURFACE				30	31	5.9	84	25	12	24.2	86	31	88	4.5	69
1,000				30	110	5.3	82	25	86	23.6	86	31	133	5.0	68
950				30	527	2.7	79	25	541	22.5	79	31	557	4.5	64
900				30	962	-3	79	25	1,006	21.1	72	31	991	2.4	65
850				30	1,417	-2.9	75	25	1,500	18.7	70	31	1,451	-3	65
800				30	1,896	-5.1	69	25	2,019	16.9	59	31	1,936	-8	59
750				30	2,405	-7.7	64	24	2,575	14.7	49	31	2,464	-11.1	57
700				30	2,933	-10.7	58	24	3,148	12.0	38	31	2,993	-5.6	49
650				30	3,506	-14.0	53	23	3,771	8.1	34	31	3,578	-8.5	45
600				30	4,103	-17.6	51	23	4,421	3.5	35	31	4,188	-11.6	41
550				30	4,753	-21.8	46	22	5,123	-1.7		31	4,855	-15.7	40
500				30	5,445	-26.3	47	22	5,874	-6.3		31	5,561	-20.5	40
450				29	6,193	-31.6	49	22	6,699	-11.3		31	6,340	-25.9	41
400				28	7,018	-37.8	54	22	7,587	-17.5		31	7,176	-32.2	41
350				28	7,924	-44.6		21	8,573	-24.8		31	8,105	-38.0	
300				27	8,939	-50.7		21	9,675	-33.6		31	9,151	-44.5	
250				23	10,108	-55.3		21	10,930	-43.0		30	10,354	-51.5	
200				20	11,533	-57.4		21	12,399	-54.5		30	11,785	-55.6	
175				19	12,359	-54.9		20	13,247	-60.6		30	12,634	-56.2	
150				18	13,350	-53.9		19	14,194	-66.5		29	13,609	-55.6	
125				18	14,516	-55.0		15	15,285	-71.5		28	14,769	-56.7	
100				18	15,937	-55.8		12	16,591	-76.2		26	16,163	-58.2	
80				17	17,353	-55.7		9	17,867	-80.3		23	17,548	-59.1	
60				15	19,195	-55.1		6	19,520	-75.7		19	19,354	-58.6	
50				15	20,359	-54.9		6	20,591	-69.0		16	20,497	-58.4	
40				13	21,763	-53.5		6	21,954	-61.1		14	21,903	-56.9	
30				9	23,639	-52.3		5	23,770	-55.2		12	23,727	-55.3	
20								5	26,379	-51.0		5	26,322	-53.9	
15								5	28,263	-48.1		5	28,176	-51.5	

\*\* Ascended to 10 mb., 6 obs., 30,906 m. -44.4°C.

Note: All observations scheduled at 0300, G.C.T. except at Mazatlan, Merida and Veracruz, where they are taken near 0200, G.C.T.. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and

expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radio-soundings; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.



# PILOT BALLOON DATA

Average monthly resultant winds

Table 21

MARCH 1952

Altitude (meters) m.s.l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N. Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)			Ely, Nev. (1,910 m.)		
	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations		
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed	
Surface-----	31	213	2.4	31	242	3.9	30	291	1.4	30	3	1.6	30	3	1.3	31	110	5.6	30	259	3.2	30	326	1.8	30	239	2.0	28	257	2.7	30	252	4.4	30	176	1.4
500-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,000-----	31	218	4.7	---	---	---	---	---	---	24	337	2.7	30	355	8	21	130	1.4	21	247	6.4	23	237	2.8	27	260	3.9	26	239	3.8	---	---	---	---	---	
1,500-----	29	224	5.9	---	---	---	---	---	---	30	338	3.4	29	274	2.3	19	242	2.0	10	239	6.0	19	274	5.9	25	280	7.2	22	250	6.0	30	257	6.2	---	---	
2,000-----	26	231	6.8	31	238	4.3	30	293	4.1	18	308	4.5	25	285	3.0	16	253	5.4	13	283	7.3	23	286	11.3	15	258	7.3	30	254	7.1	30	177	1.5	---	---	
2,500-----	23	244	8.9	30	259	6.0	25	276	5.0	18	305	5.7	21	269	4.2	11	251	10.7	12	287	10.6	20	289	14.6	10	269	8.4	30	252	7.5	28	225	1.7	---	---	
3,000-----	23	252	11.4	27	262	6.3	20	266	6.2	17	303	6.9	18	275	5.5	10	255	12.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4,000-----	19	253	16.8	24	270	11.8	17	270	7.9	15	288	9.5	16	288	6.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
5,000-----	10	253	14.1	17	267	15.3	14	276	9.1	14	291	9.3	13	312	9.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
6,000-----	---	---	---	14	263	15.7	11	280	11.1	12	289	7.8	10	296	8.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
8,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
10,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	

Altitude (meters) m.s.l.	Grand Junction, Colo. (1,475 m.)			Greensboro, N.C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)		
	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations		
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed	
Surface-----	31	292	1.8	30	261	3.1	30	273	0.7	30	120	1.3	25	308	1.0	30	160	1.0	28	333	1.1	31	145	3.2	28	48	0.5	28	245	1.2	29	277	3.1	27	254	1.9
500-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,000-----	---	---	---	29	241	5.2	30	266	2.6	29	247	4.0	20	282	1.2	29	225	4.2	27	252	1.7	30	192	2.5	23	326	2.0	25	249	3.0	29	288	4.4	27	252	2.3
1,500-----	31	228	2.3	28	256	7.2	29	267	5.1	26	261	6.8	15	262	3.4	28	249	6.5	21	233	2.3	28	236	3.4	18	313	5.0	24	273	4.5	24	325	5.5	23	231	6.6
2,000-----	31	278	1.8	23	294	10.6	28	275	6.3	22	267	10.4	12	255	5.3	26	260	9.9	17	237	3.8	24	255	4.5	17	304	7.9	22	267	8.2	22	334	6.7	21	248	7.6
2,500-----	31	246	4.0	22	293	13.1	25	279	6.4	15	273	11.7	10	276	7.2	24	258	12.4	10	16	2.2	21	251	7.0	15	293	9.4	21	270	10.8	21	342	9.1	20	247	10.0
3,000-----	27	234	4.9	21	289	15.8	22	280	6.5	13	265	11.6	10	274	9.7	22	257	15.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4,000-----	14	248	7.9	15	283	19.4	18	272	9.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
5,000-----	---	---	---	11	293	20.7	16	274	9.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
6,000-----	---	---	---	10	288	27.0	11	288	12.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
8,000-----	---	---	---	10	288	17.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Altitude (meters) m.s.l.	Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)			Spokane, Wash. (725 m.)			Washington, D.C. (24 m.)				
	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations				
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed
Surface-----	28	108	0.3	31	248	1.3	28	18	4.4	25	333	0.7	28	222	1.1	28	121	1.3	28	241	3.3	21	319	1.8	28	212	2.9	29	232	3.1	27	284	1.7		
500-----	28	49	.4	31	254	1.8	---	---	---	25	307	.4	28	220	1.7	28	143	1.4	28	246	2.7	21	333	2.6	28	184	3.7	---	---	---	27	293	3.6		
1,000-----	21	211	2.9	31	247	2.9	28	19	4.3	19	203	1.2	22	220	3.5	25	197	1.6	22	259	2.2	19	36	1.4	24	191	5.5	29	237	5.1	27	274	5.8		
1,500-----	15	260	6.0	30	251	3.7	27	322	3.0	15	261	2.6	20	237	5.6	23	223	2.9	17	260	1.4	18	45	1.4	21	197	4.9	28	241	4.6	24	272	8.3		
2,000-----	13	256	8.2	28	248	4.8	22	289	4.6	13	293	4.8	17	254	8.4	23	243	6.1	15	338	5.0	16	6	2.5	16	226	3.2	26	245	4.4	22	278	9.9		
2,500-----	12	262	9.3	26	251	4.8	19	283	7.3	12	297	7.1	17	253	11.6	21	250	8.5	13	340	7.1	15	339	3.9	14	242	3.9	23	257	4.5	20	285	12.5		
3,000-----	12	270	10.1	24	265	7.1	18	284	7.9	12	289	8.0	14	267	14.3	20	258	12.2	12	332	8.8	14	321	4.9	12	233	2.5	19	287	5.0	18	284	13.8		
4,000-----	---	---	---	23	282	10.1	17	294	10.3	12	293	9.7	14	278	16.2	16	264	18.4	10	315	13.0	11	324	9.4	10	297	2.2	14	309	6.5	13	273	16.9		
5,000-----	---	---	---	20	279	14.0	12	298	12.3	12	280	11.2	10	281	19.0	11	253	22.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
6,000-----	---	---	---	19	280	18.3	10	280	12.1	11	282	13.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°; W = 270°); speeds in meters per second.



## Average monthly resultant winds

MARCH 1952

See note following table 3 in the January 1950 issue of the CLIMATOLOGICAL DATA, National Summary.



# SOLAR RADIATION DATA

Table 30--Solar radiation intensities, tabulated in langley's per minute.

MARCH 1952

Date	Sun's zenith distance								Vapor pressure, EST
	A. M.				0.0°	P. M.			
	78.7°	75.7°	70.7°	60.0°	60.0°	70.7°	75.7°	78.7°	
									7.30 1.30 a. m. p. m.
TABLE MOUNTAIN, CALIF.									
Air mass									
	3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76
March				1.51					Mb Mb
5----				1.47					
20----				1.46					
21----				1.52					
22----				1.44					
25----				1.45					
31----									
Aver- ages				1.48					
Depar- tures				+0.01					
LINCOLN, NEBR.									
Air mass									
	4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77
March				1.41					Mb Mb
4----		0.92	1.09	1.24					
27----				1.39		1.01	0.88	0.79	
28----				1.14		1.12	.90	.73	
Aver- ages		.92	1.09	1.21	1.38	1.13	.96	.81	.72
Depar- tures		-0.01	+0.01	-0.06	-0.09	-0.13	-0.11	-0.12	-0.09
MADISON, WIS.									
Air mass									
	4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81
March									Mb Mb
1----	0.81	0.95	1.10	1.25					
7----	.64	.73	.79	.95					
11----	.80	.92	1.02	1.21					
14----	.83	.94	1.06	1.24					
20----	.63	.74	.81	.98					
21----	.58	.69	.83	1.03					
27----	.81	.95	1.04	1.21		1.24	0.94		
Aver- ages	.73	.85	.95	1.12		1.24	.94		
Depar- tures	-0.06	-0.09	-0.14	-0.15		-0.04	-0.22		
TACUBAYA, D. F., MEXICO									
Air mass									
	3.83	3.07	2.31	1.53	*0.77	1.53	2.31	3.07	3.83
									Mb Mb
NO DATA DURING MARCH 1952									

Date	Sun's zenith distance								Vapor pressure, EST
	A. M.				0.0°	P. M.			
	78.7°	75.7°	70.7°	60.0°	60.0°	70.7°	75.7°	79.7°	
									7.30 1.30 a. m. p. m.
ALBUQUERQUE, N.M.									
Air mass									
	4.68	3.26	2.44	1.63	*0.815	1.63	2.44	3.26	4.08
March									Mb Mb
3----							1.99	0.98	0.76
6----	0.81	0.92	1.05	1.26				.90	.76
8----								.93	.82
10----	.79	.93	1.07	1.22		1.23	1.04	.87	.75
Recorder Inoperative After March 10th									
Aver- ages	.80	.93	1.02	1.25		1.23	1.04	.92	.81
Depar- tures	-0.15	-0.14	-0.14	-0.07		-0.12	-0.19	-0.19	-0.23
BLUE HILL, MASS.									
Air mass									
	4.86	3.89	2.91	1.94	*0.97	1.94	2.92	3.89	4.86
March									Mb Mb
9----	1.08	1.18	1.31	1.42		1.44	1.05		
12----			1.07	1.24		1.22	1.05	0.94	0.85
15----	1.02	1.13	1.26	1.43		1.39	1.18	1.04	.92
17----		1.00	1.14						
22----	.90	.95	1.09						
27----						1.11	1.06	1.00	
28----	.58	.68	.81						
30----	.73	.86	1.04	1.23			1.03	.92	.84
Aver- ages	.86	.97	1.10	1.33		1.35	1.12	.99	.90
Depar- tures	.02	.06	+0.01	+0.09		+0.11	+0.06	+0.04	+0.06
BOSTON, MASS.									
Air mass									
	4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96
March									Mb Mb
12----	0.76	0.90	1.06	1.23		1.21	1.03	0.91	0.79
15----			.99	1.17					
26----			.78	1.04					
28----			.93	1.08					
Aver- ages	.76	.90	.94	1.13		1.21	1.03	.91	.79
Depar- tures	+0.08	+0.17	+0.05	+0.03		+0.06	+0.03	+0.06	----
RATIO BOSTON/BLUE HILL ON COMPARABLE DATES									
			1.06	0.99		0.99	0.98	0.97	0.93
* Extrapolated.									

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface.  
An explanation of Tables 30 and 31 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given

in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.



# SOLAR RADIATION DATA

Table 31a.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month MARCH 1952

Date-----	26	27	28	29	1	2	3	Aver-	4	5	6	7	8	9	10	Aver-	11	12	13	14	15	16	17	Aver-
Langleys-----	577	33	512	553	36	613	280	age	106	46	42	70	77	137	342	117	9	(507)	--	(467)	531	247	179	(323)
Date-----	18	19	20	21	22	23	24	Aver-	25	26	27	28	29	30	31	Aver-								
Langleys-----	405	38	103	218	206	23	22	age	391	386	431	354	267	400	131	337								

Table 31b.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during the month

Date-----	26	27	28	29	1	2	3	Aver-	4	5	6	7	8	9	10	Aver-	11	12	13	14	15	16	17	Aver-
Langleys-----	124	39	136	137	57	141	122	age	94	26	37	57	61	110	113	71	12	74	100	96	101	128	77	84
Date-----	18	19	20	21	22	23	24	Aver-	25	26	27	28	29	30	31	Aver-								
Langleys-----	81	24	55	66	54	11	6	age	42	65	78	57	100	88	57	74								

Table 31c.-Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

Date-----	26	27	28	29	1	2	3	Aver-	4	5	6	7	8	9	10	Aver-	11	12	13	14	15	16	17	Aver-
Langleys-----	80	52	110	87	68	68	161	age	90	149	51	48	106	111	180	138	28	93	216	99	62	182	162	120
Date-----	18	19	20	21	22	23	24	Aver-	25	26	27	28	29	30	31	Aver-								
Langleys-----	126	61	132	170	142	46	32	age	101	268	125	155	183	134	160	183								

Note.--Langley is the unit used to denote one gram calorie per square centimeter.



# SOLAR RADIATION DATA

Table 33.—Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyes.

MARCH 1952

	Aklavik, MacKenzie	Albuquerque, N.Mex.	Alachicola, Fla.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Big Spring, Tex.	Blue Hill, Mass.	Boston, Mass.	Brownsville, Tex.	Charleston, S.C.	Columbia, Mo.	Columbus, Ohio	Davis, Calif.	E. Lansing, Mich.	Edmonton, Alberta	El Paso, Tex.	Fairbanks, Alaska	Ft. Worth, Tex.	Fresno, Calif.	Grand Junction, Colo.	Grand Lake, Colo.	Griffin, Ga.	Hatteras, N.C.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N.Y.	Jeanerette, La. *	Keflavik, Iceland	Lake Charles, La.	Lander, Wyo.	Las Vegas, Nev.	
1952																																	
February 26--	88	511	145	71	86	93	553	432	364	593	45	465	323	160	242	202	554	93	557	77	439	498	65	64	409	121	423	(442)	---	432	447	196	
February 27--	128	197	535	451	99	154	446	55	52	613	474	372	385	360	237	314	222	107	(428)	387	387	432	186	432	480	378	480	378	599	---	524	465	446
February 28--	104	(465)	517	455	149	139	435	437	395	559	402	352	326	392	118	305	512	127	340	283	387	432	375	491	333	498	314	510	---	474	217	463	
February 29--	74	509	285	---	112	141	374	465	404	574	340	340	394	340	166	288	485	164	536	240	507	467	406	468	84	144	431	484	---	262	531	351	
March 1--	80	87	488	---	94	186	146	75	60	417	471	366	329	365	329	328	212	123	87	303	137	179	601	491	384	424	318	447	210	262	313	164	
March 2--	144	264	308	207	119	240	483	511	433	230	137	135	73	459	108	334	304	159	391	508	309	296	186	462	498	394	232	216	201	468	241	489	
March 3--	144	456	354	507	118	145	504	329	293	577	272	49	82	173	123	279	230	194	553	397	437	420	47	64	39	492	102	320	136	395	309	489	
Averages-----	109	(356)	369	260	98	158	406	329	286	509	306	271	251	329	189	274	361	138	(413)	338	357	350	315	318	236	379	337	(433)	---	387	393	336	
Departures-----	-12	-54	-25	-39	---	-4	---	+44	+51	+100	-54	-12	-6	+22	-25	-49	-119	+7	+28	-11	---	-11	-16	---	-48	-45	+114	---	---	+34	-19	-60	
March 4--	120	308	329	537	91	250	496	173	162	391	246	577	429	400	15	345	579	109	(583)	297	348	491	511	150	60	525	151	610	151	597	468	441	
March 5--	164	559	365	---	124	267	552	58	47	276	455	473	409	352	330	352	574	177	441	338	338	474	498	513	321	542	109	377	211	450	486	462	
March 6--	118	(516)	311	518	147	124	501	59	39	80	531	523	340	65	411	330	586	212	540	19	479	517	536	(550)	421	350	179	600	183	590	527	297	
March 7--	179	(469)	477	---	169	172	440	111	94	242	526	497	312	440	412	337	588	(188)	567	147	137	353	539	147	443	75	200	600	246	547	312	108	
March 8--	102	567	538	532	162	185	617	154	161	274	536	214	435	392	341	285	588	135	559	506	461	509	531	462	283	---	181	640	245	587	553	73	
March 9--	176	511	462	511	123	240	192	220	251	259	510	252	171	394	144	349	484	144	66	436	489	420	521	500	295	---	429	194	40	197	511	399	
March 10--	157	495	375	36	126	175	385	366	350	515	156	50	82	325	40	336	565	(207)	334	268	390	527	23	168	35	397	278	135	(141)	180	429	185	
Averages-----	145	(459)	403	428	134	202	453	151	160	291	423	369	282	310	242	331	566	(168)	(441)	302	378	470	451	(355)	266	378	218	451	(174)	450	469	281	
Departures-----	-18	-6	-16	-78	---	-1	---	-127	-89	-129	+41	+65	-9	-36	-16	+23	+35	+14	+34	-93	---	-467	+89	---	-36	-86	---	---	---	+64	-42	-152	
March 11--	142	293	535	---	157	172	540	28	22	---	566	554	165	453	373	300	(610)	228	597	296	113	450	454	418	---	579	108	633	83	575	339	404	
March 12--	169	583	469	549	146	214	505	471	458	494	396	457	438	377	380	579	240	546	244	418	446	542	542	477	600	398	---	---	---	---	---	---	
March 13--	208	560	387	---	131	219	385	(391)	334	405	341	77	226	410	99	326	399	247	462	426	314	458	595	382	176	583	---	---	---	---	---	---	
March 14--	227	589	329	348	171	141	538	519	450	448	334	93	306	67	442	407	646	151	550	54	445	303	312	562	300	315	419	175	120	205	558	486	
March 15--	142	595	561	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
March 16--	176	(558)	615	603	(169)	330	339	336	346	580	529	512	464	182	247	422	597	200	566	65	298	316	478	(97)	452	95	440	634	190	574	521	258	
March 17--	184	364	617	585	205	276	464	231	254	329	611	318	493	216	425	349	368	(267)	31	445	328	386	607	630	474	609	197	378	34	338	460	621	
Averages-----	178	(506)	502	521	(163)	(226)	477	(361)	339	472	502	329	329	291	301	371	(524)	(215)	462	264	323	403	508	(449)	391	484	260	471	87	424	489	467	
Departures-----	-24	-28	+61	+134	---	-20	---	+50	+43	+52	+91	-30	-42	-78	+45	+38	-54	+16	+1	-146	---	-16	+121	---	-89	-44	---	---	---	-84	-2	+25	-31
March 18--	244	594	472	88	229	373	452	454	419	368	280	126	81	260	74	173	651	306	602	217	349	517	111	519	32	539	467	392	155	491	586	371	
March 19--	246	(611)	609	611	240	370	507	63	82	306	599	398	64	392	38	302	660	(292)	632	219	267	202	633	508	91	641	125	630	254	631	611	568	
March 20--	256	612	502	614	234	341	560	139	119	599	604	449	432	542	336	395	620	(310)	622	604	298	200	633	619	319	568	358	(479)	178	(533)	193	524	
March 21--	239	463	423	---	232	371	422	237	207	487	343	149	343	551	380	456	643	294	(477)	562	349	304	145	578	212	641	403	247	241	231	447	605	
March 22--	233	(551)	513	172	158	353	643	232	282	323	350	113	77	566	53	344	660	(265)	678	594	552	478	229	456	45	651	44	175	188	192	596	601	
March 23--	222	(680)	277	151	246	233	490	46	50	484	290	533	---	375	194	383	633	(330)	576	479	456	403	114	207	392	539	75	230	288	(557)	477	516	
March 24--	240	416	147	233	261	261	515	32	31	678	58	597	270	473	384	423	(580)	(264)	550	541	298	319	124	210	438	483	225	716	257	690	484	390	
Averages-----	240	(561)	420	312	228	329	513	172	170	463	374	338	211	451	208	361	(635)	---	(591)	459	367	346	283	442	219	580	242	(410)	223	(475)	485	511	
Departures-----	+5	+2	-39	-100	---	+21	---	-182	-116	+26	-56	-30	-72	+53	-61	+22	+18	---	+78	+9	---	-93	-138	-9	-75	+12	-52	---	+27	+24	-9	-27	
March 25--	268	584	392	601	214	284	315	486	536	379	347	298	454	548	401	200	649	(260)	(564)	553	520	285	636	295	433	623	416	475	210	433	539	566	
March 26--	233	569	174	596	288	416	567	424	454	510	167	397	215	572	223	430	679	(240)	(569)	557	537	449	616	69	381	636	388	690	87	634	489	576	
March 27--	115	662	643	498	311	449	248	468	485	407	597	561	253	537	322	307	680	(279)	(165)	566	647	529	612	423	408	666	359	684	83	646	650	601	
March 28--	134	670	542	373	212	450	718	418	493	122	378	561	303	524	263	338	614	(325)	(702)	516	648	642	290	533	342	631	253	573	74	503	581	570	
March 29--	182	545	513	536	307	325	372	307	325	458	618	597	393	461	427	482	516	(321)	(310)	575	376	401	446	670	637	535	560	467	129	577	610	540	
March 30--	197	514	568	579	213	374	651	432	329	471	625	501	493	563	381	457	672	(433)	575	376	405	614	674	439	535	492	144	374	439	572	540	586	
March 31--	---	658	244	118	208	473	639	165	181	---	---	---	---	---	193	373	682	431	666	608	545	322	121	578	84	652	300	139	158	100	547	586	
Averages-----	188	598	454	486	238	412	504	389	427	391	414	458	337	539	316	344	643	---	---	---	554	528	440	509	459	374	601	388	532	126	463	578	573
Departures-----	-87	+50	-19	+56	---	+58	---	-3	+58	-76	-52	+94	+30	+50	+34	-11	+8	---	---	+67	---	-12	+39	-3	+52	+30	---	---	-83	-4	+54	+17	

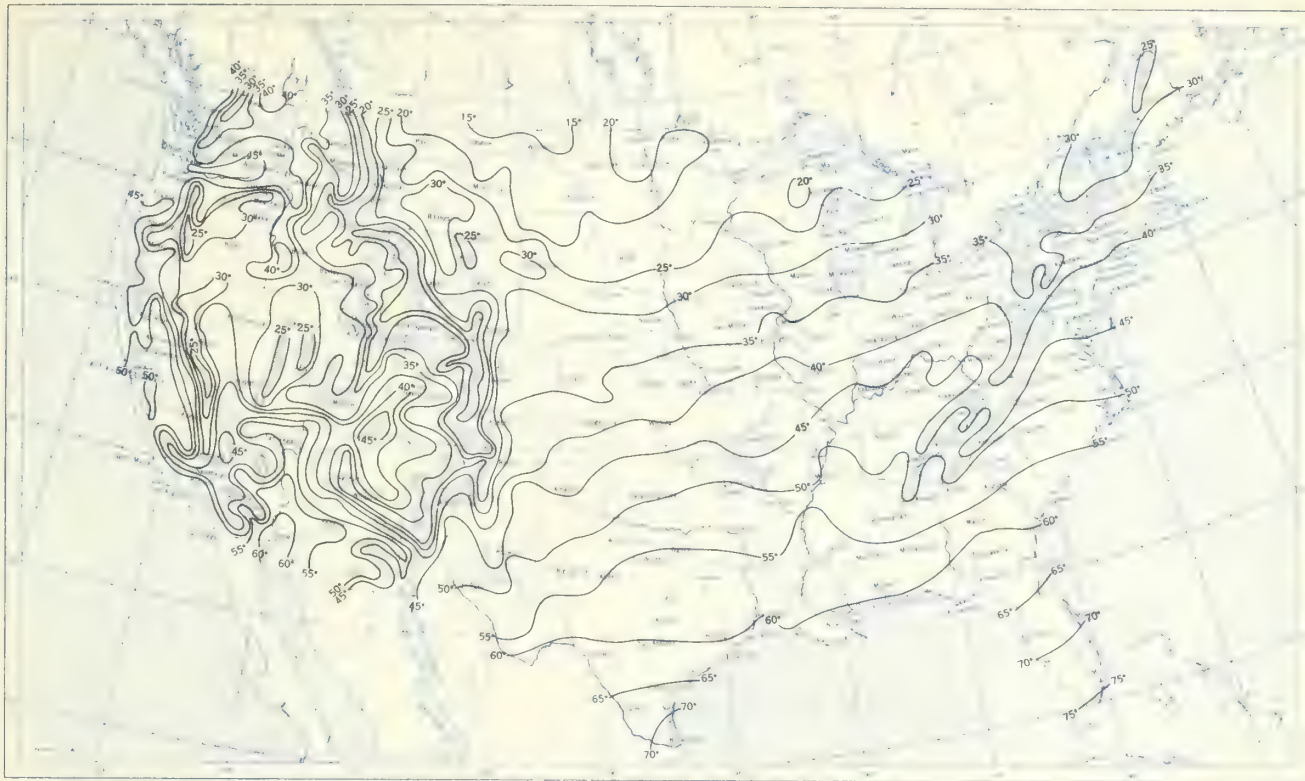
Accumulated Departures January 1



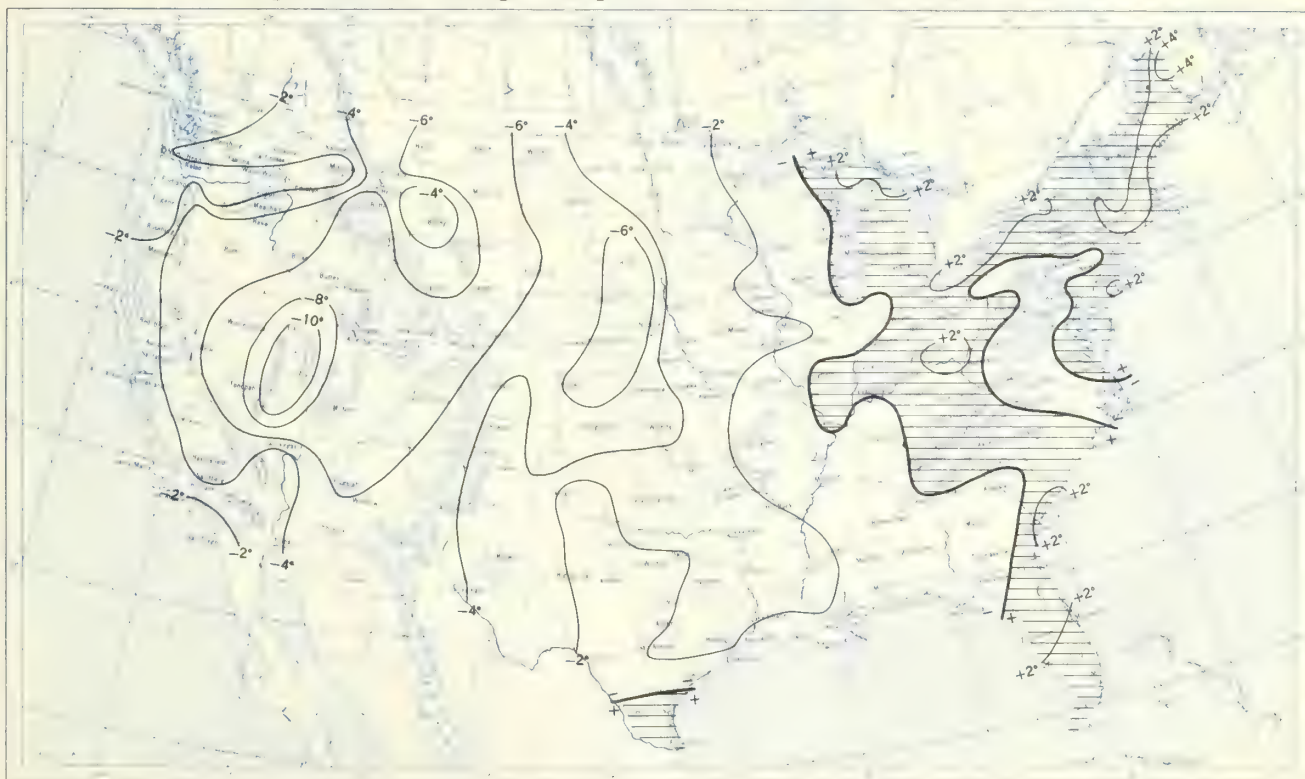




**Chart I. A. Average Temperature ( $^{\circ}\text{F.}$ ) at Surface, March 1952.**



**B. Departure of Average Temperature from Normal ( $^{\circ}\text{F.}$ ), March 1952.**

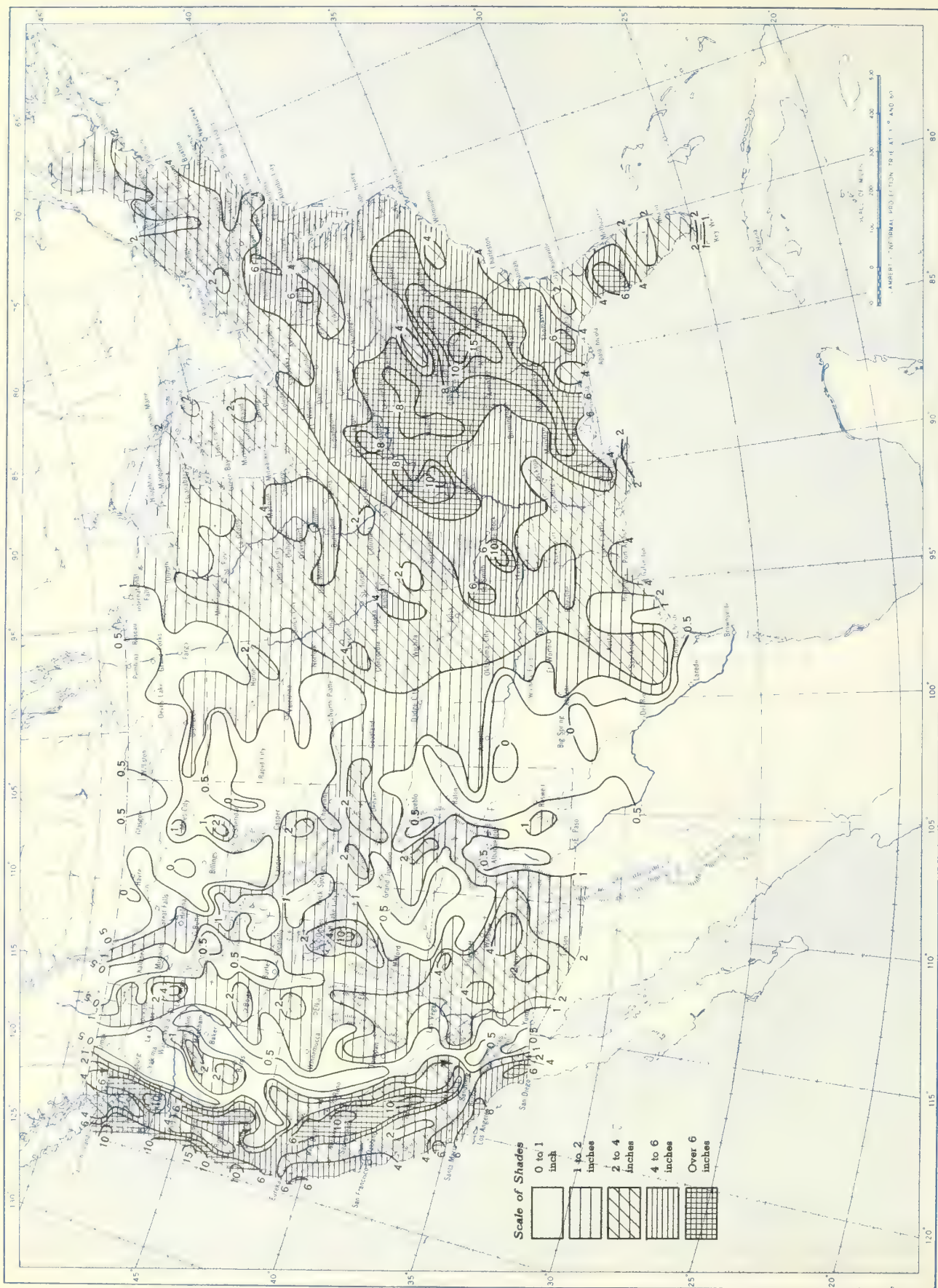


A. Based on reports from 800 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Normal average monthly temperatures are computed for Weather Bureau stations having at least 10 years of record.



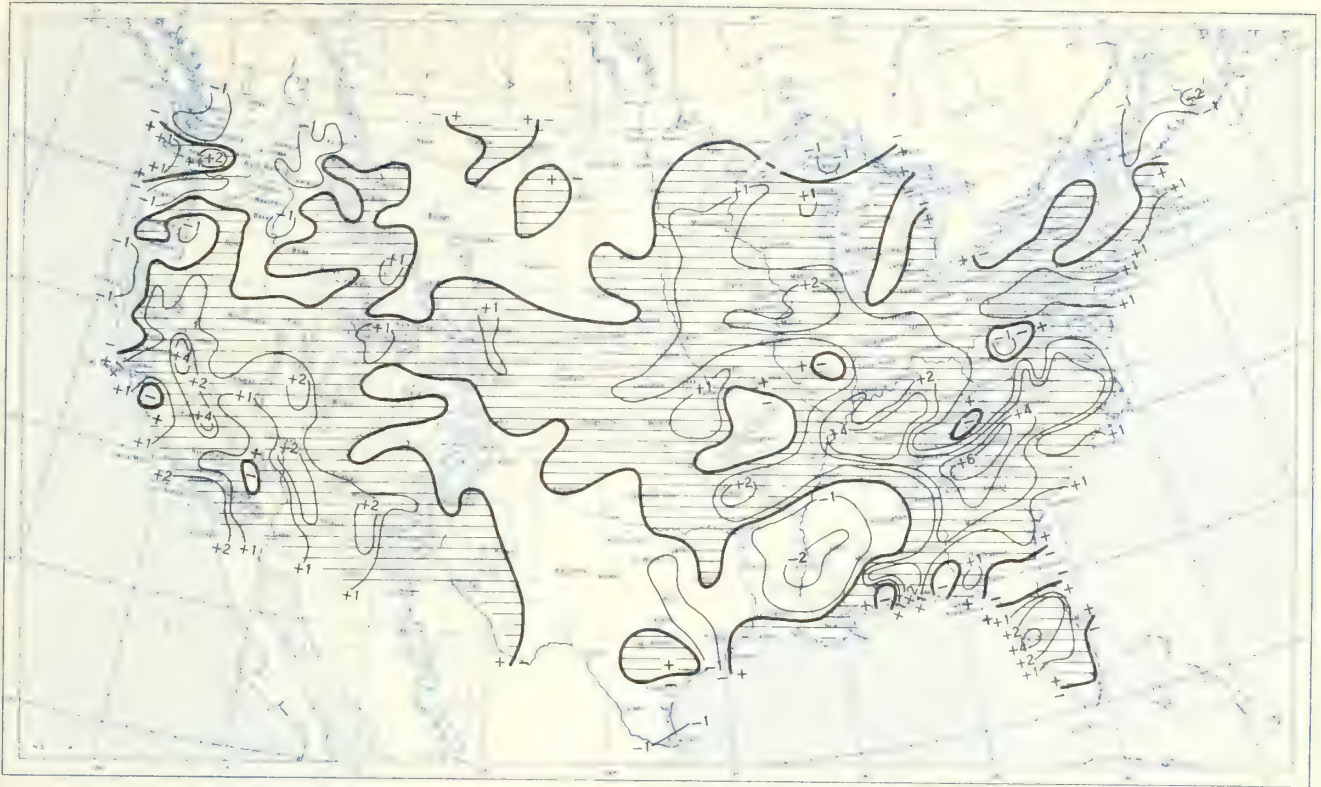
Chart II. Total Precipitation (Inches), March 1952.



Based on daily precipitation records at 800 Weather Bureau and cooperative stations.



Chart III. A. Departure of Precipitation from Normal (Inches), March 1952.



B. Percentage of Normal Precipitation, March 1952.



Normal monthly precipitation amounts are computed for stations having at least 10 years of record.



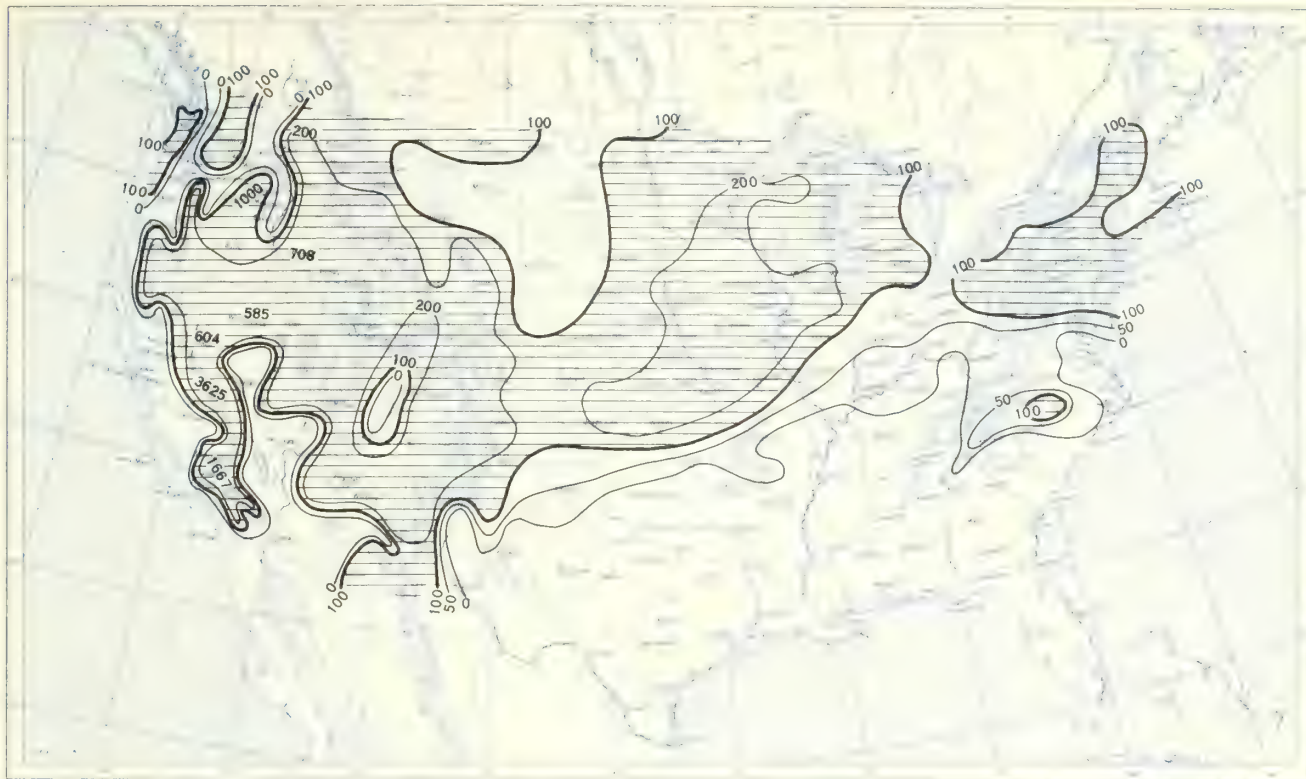
Chart IV. Total Snowfall (Inches), March 1952.



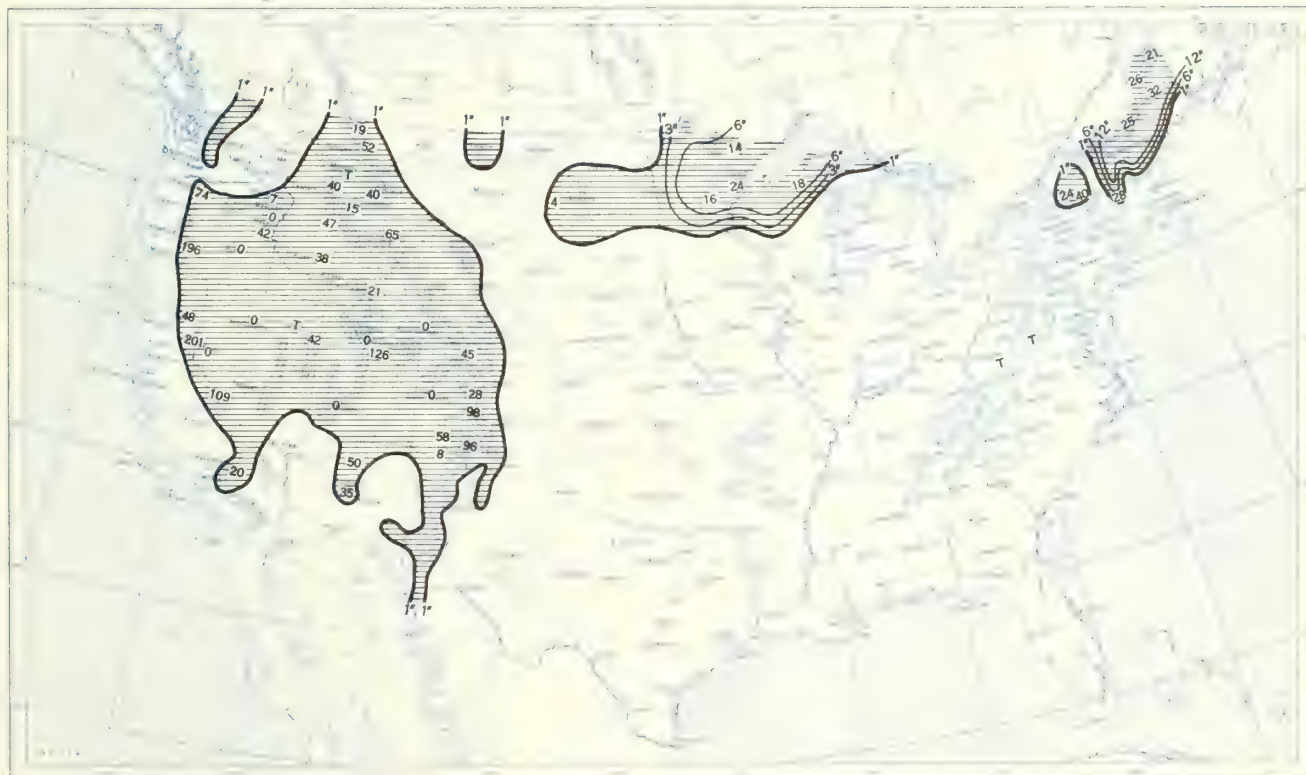
This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.



Chart V. A. Percentage of Normal Snowfall, March 1952.



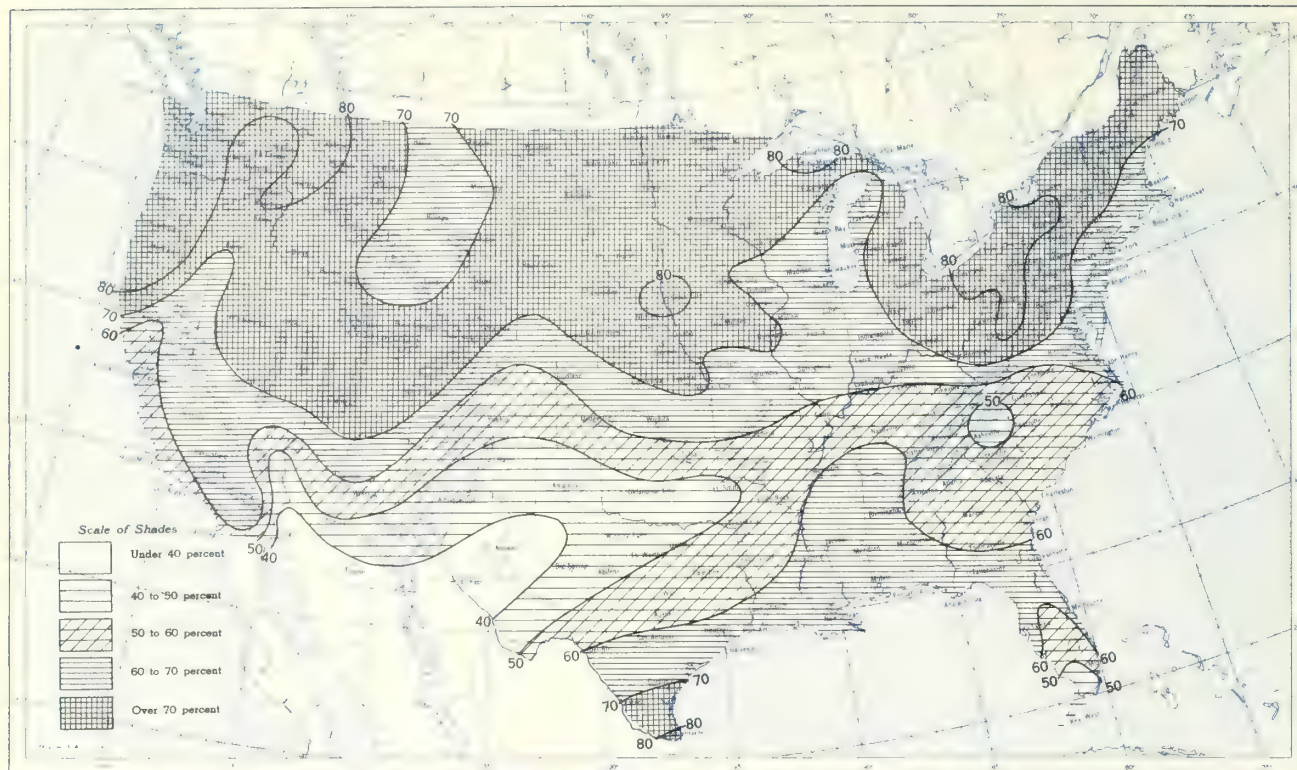
B. Depth of Snow on Ground (Inches), 7:30 a. m. E. S. T., April 1, 1952.



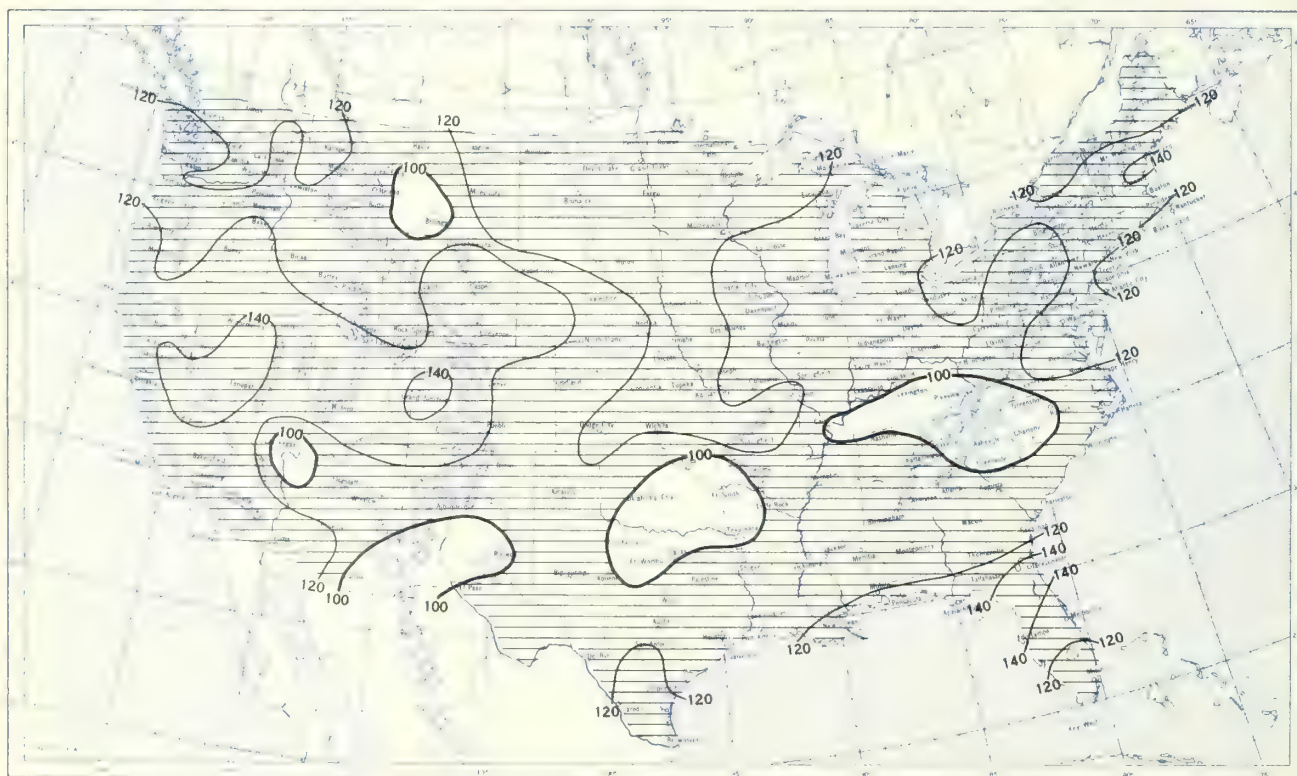
A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.  
 B. Shows depth currently on ground at 7:30 a. m. E. S. T., of the Tuesday nearest the end of the month. It is based on reports from Weather Bureau and cooperative stations. Dashed line shows greatest southern extent of snowcover during month.



Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, March 1952.



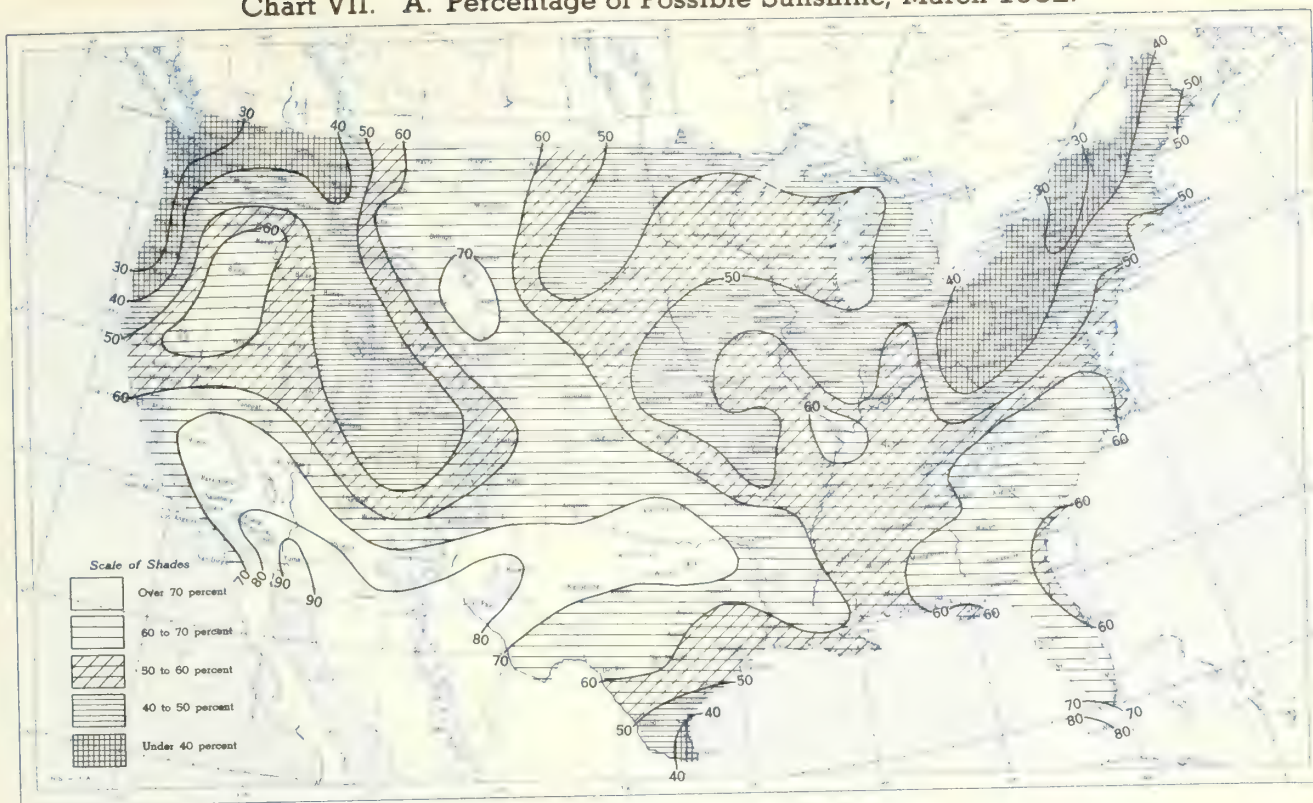
B. Percentage of Normal Sky Cover Between Sunrise and Sunset, March 1952.



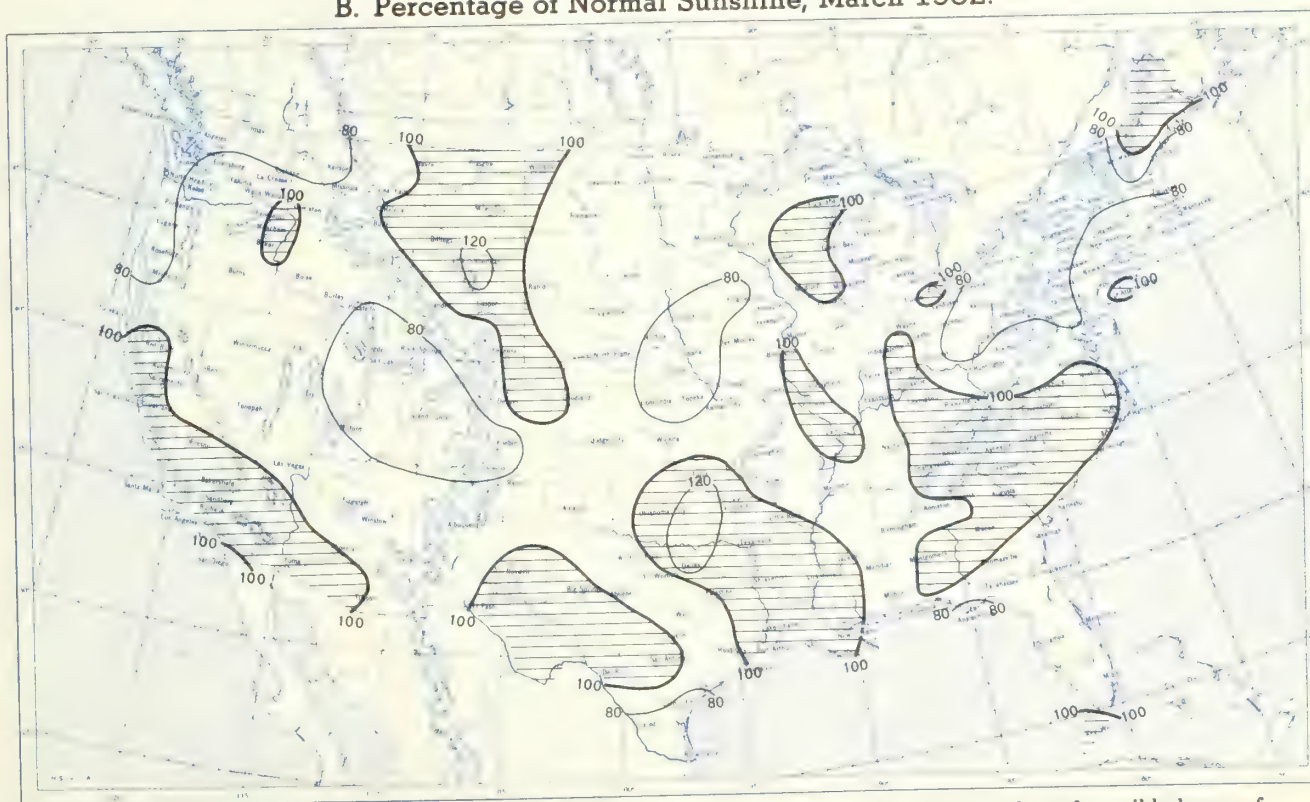
A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.



Chart VII. A. Percentage of Possible Sunshine, March 1952.



B. Percentage of Normal Sunshine, March 1952.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.



Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, March 1952. Inset: Percentage of Normal Average Daily Solar Radiation, March 1952.

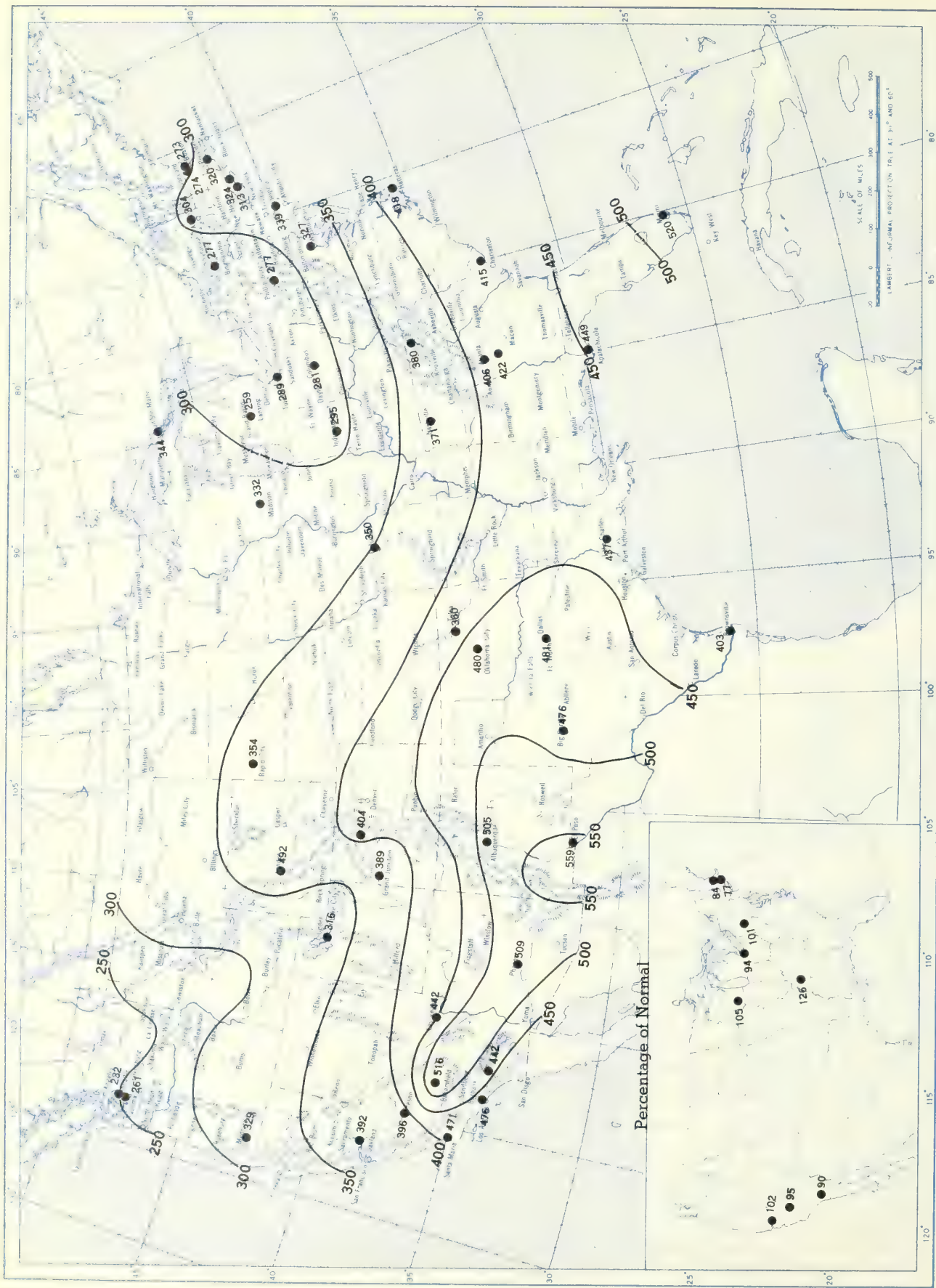


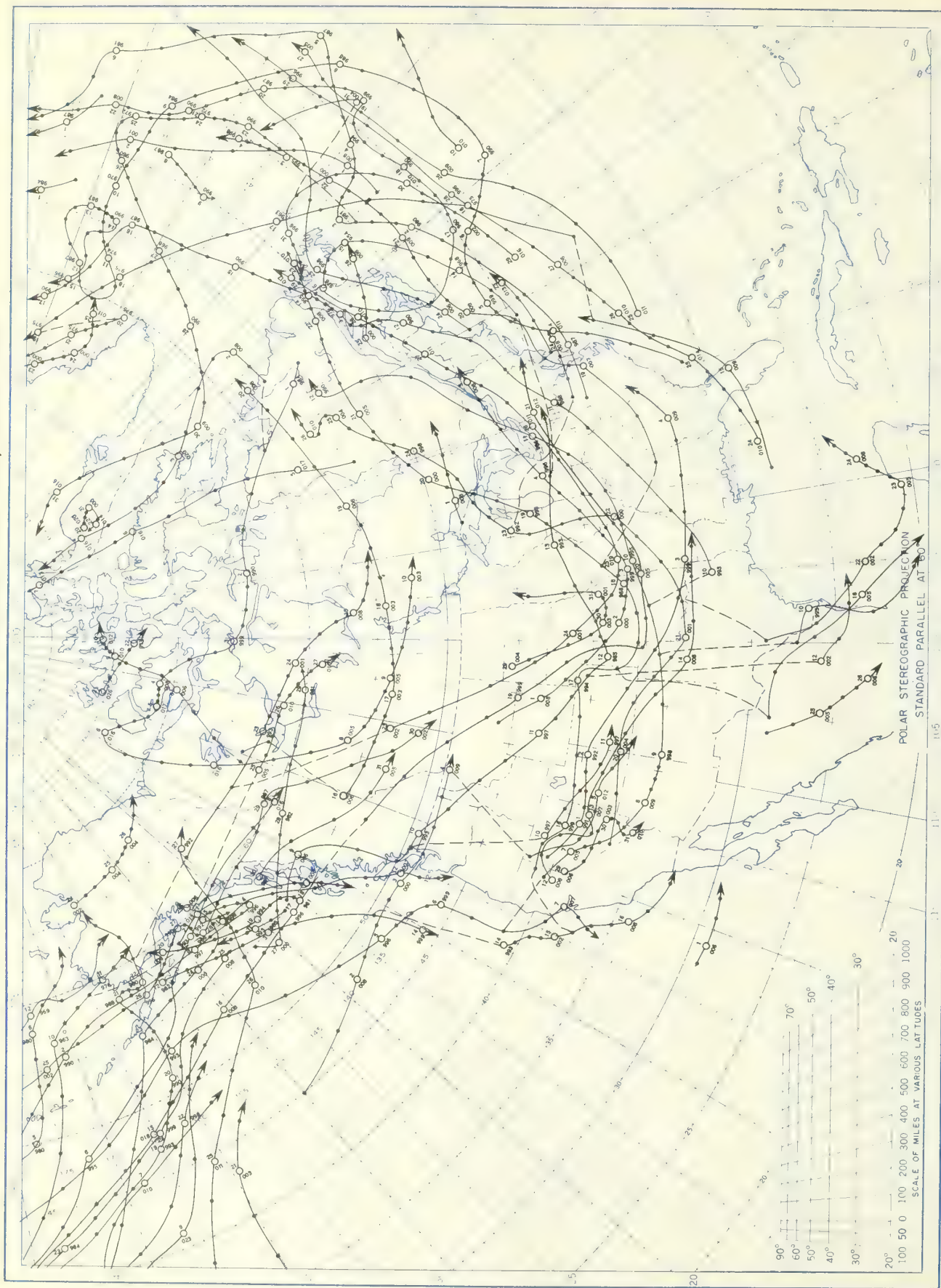
Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm. <sup>-2</sup>). Basic data for isotherms are shown on chart. Further estimates obtained from supplementary data for which limits of accuracy are wider than for those data shown. Normals are computed for stations having at least 0 years of record.



Circle indicates position of center at 7:30 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



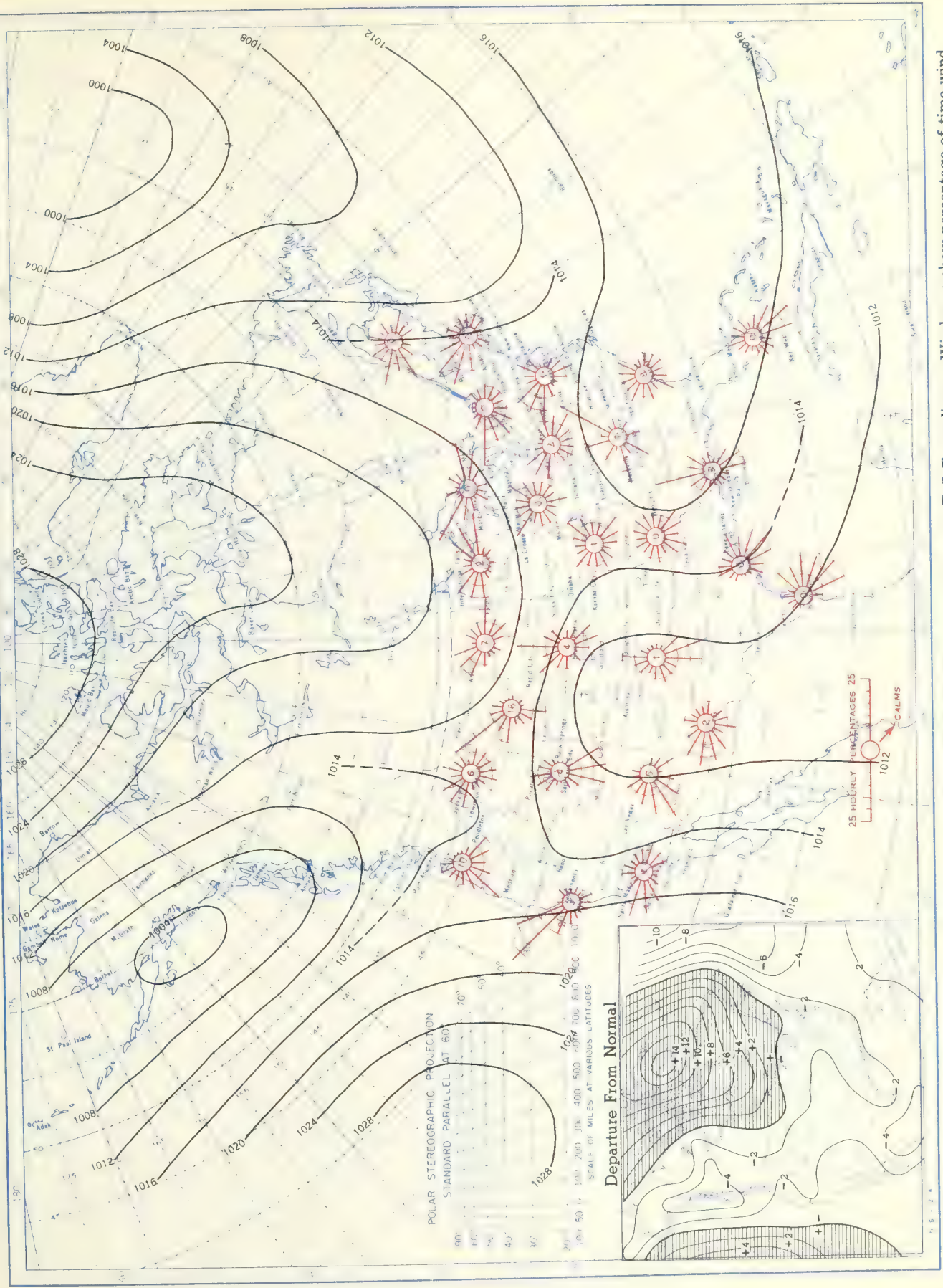
Chart X. Tracks of Centers of Cyclones at Sea Level, March 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. See Chart IX for explanation of symbols.



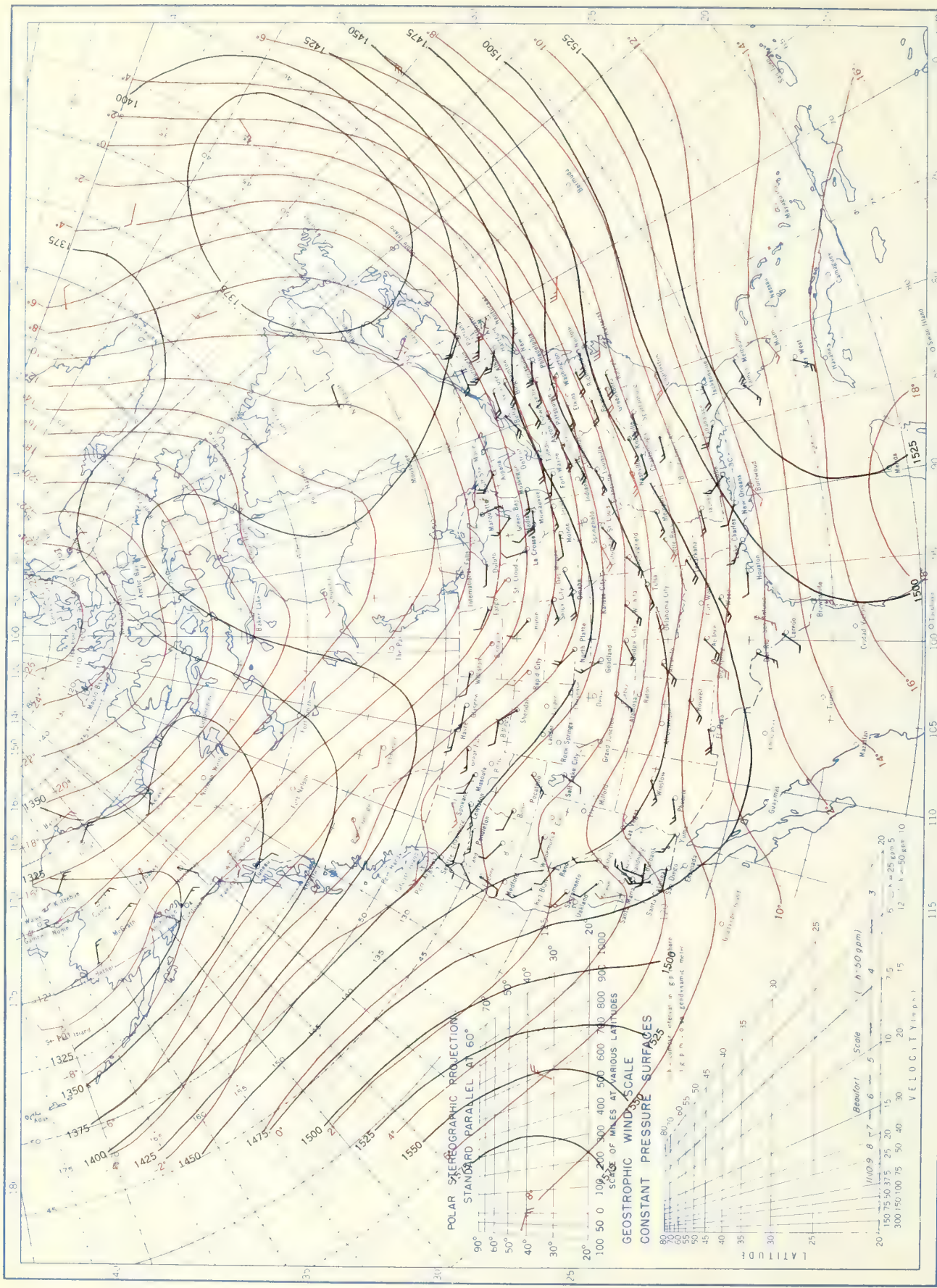
Chart 21. Average Sea Level Pressure (mb.) from Normal, March 1952.



Average sea level pressures are obtained from the averages of the 7:30 a.m. and 7:30 p.m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.



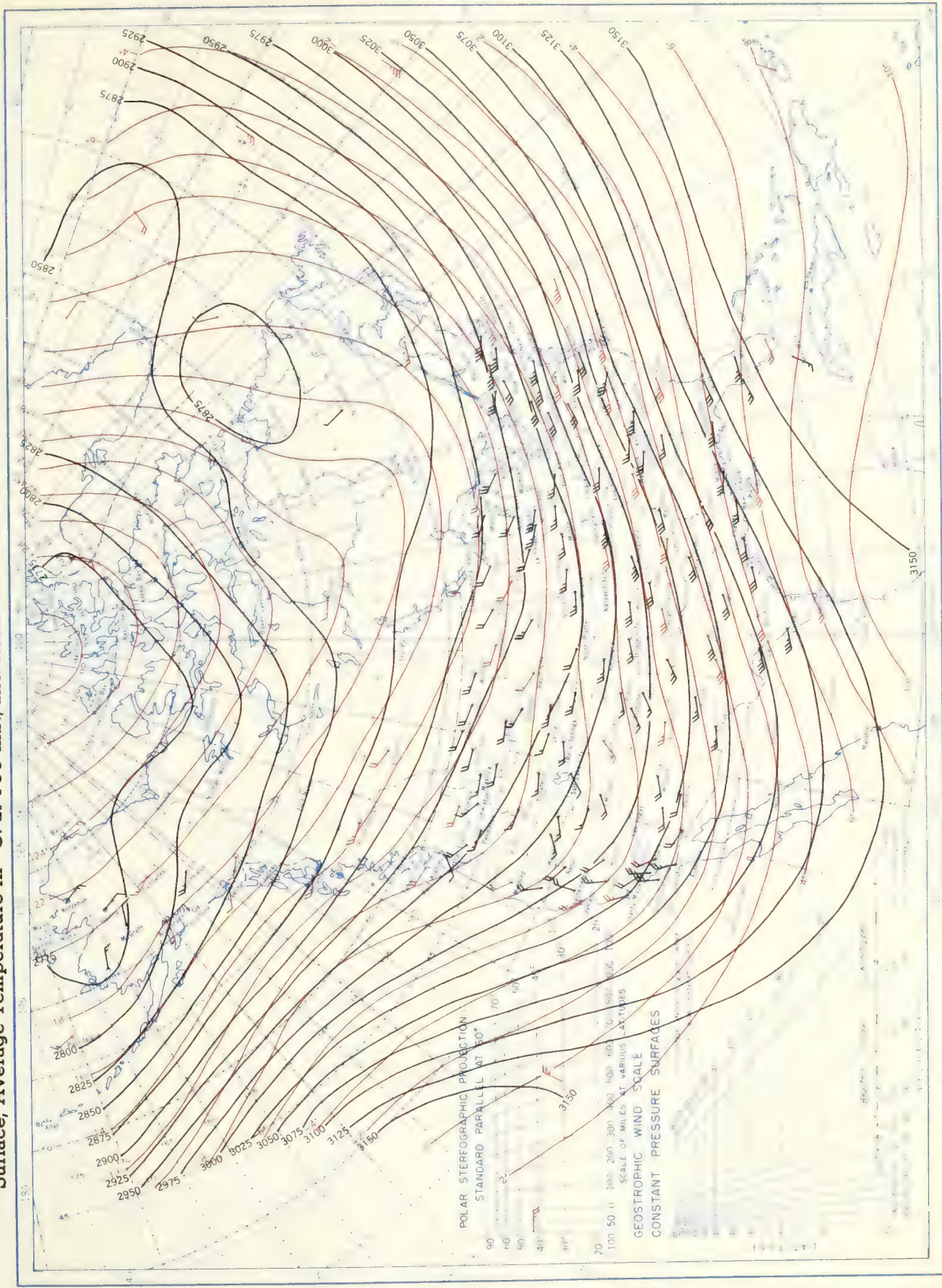
Chart XII. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 850-mb. Pressure Surface, Average Temperature in °C. at 850 mb., and Resultant Winds at 1500 Meters (m.s.l.), March 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0300 G. M. T.



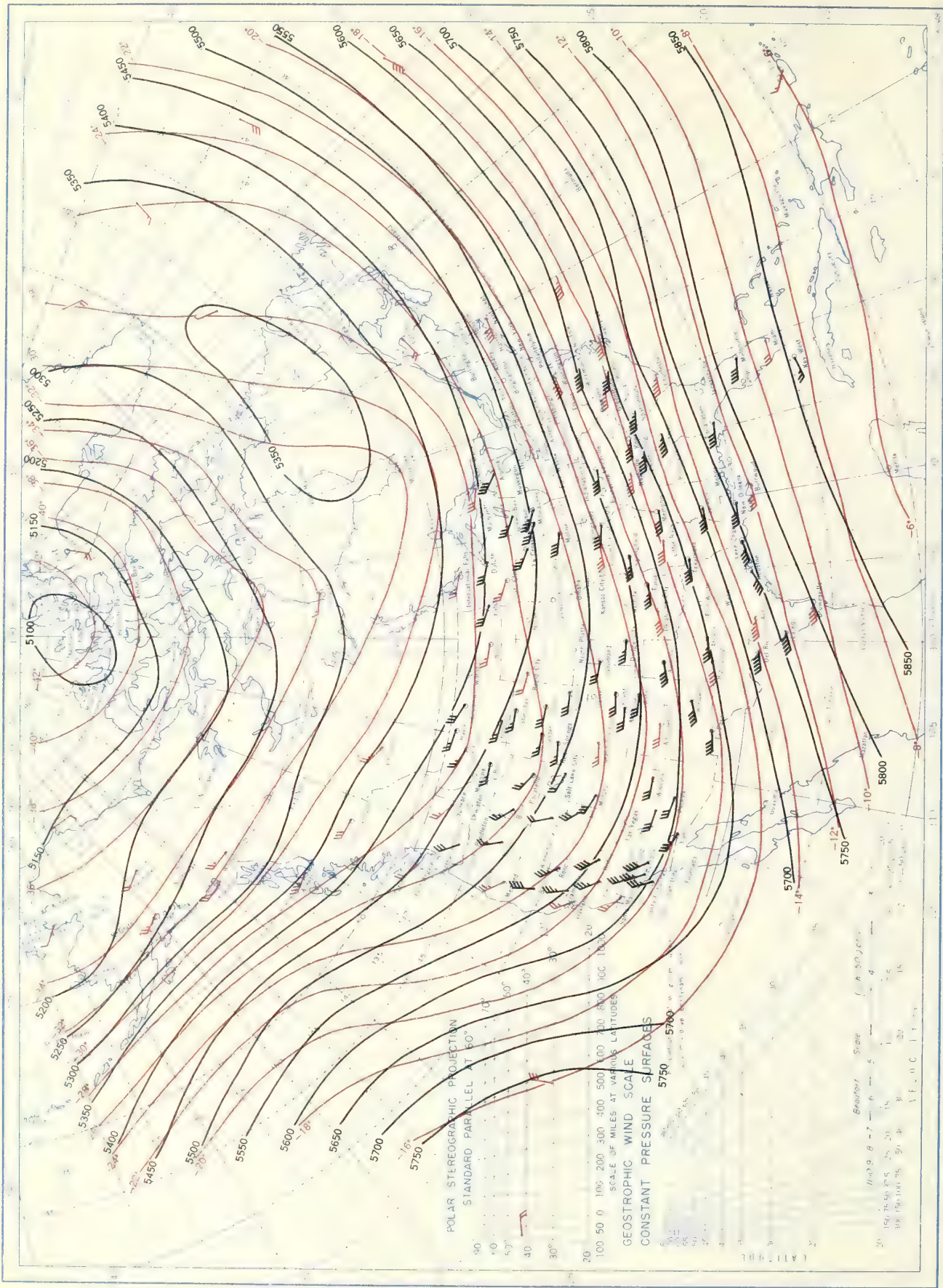
Chart XIII. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 700-mb. Pressure Surface, Average Temperature in °C. at 700 mb., and Resultant Winds at 3000 Meters (m.s.l.), March 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawinsonde observations at 0300 G. M. T.



Chart XIV. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 500-mb. Pressure Surface, Average Temperature in °C. at 500 mb., and Resultant Winds at 5000 Meters (m.s.l.), March 1952.

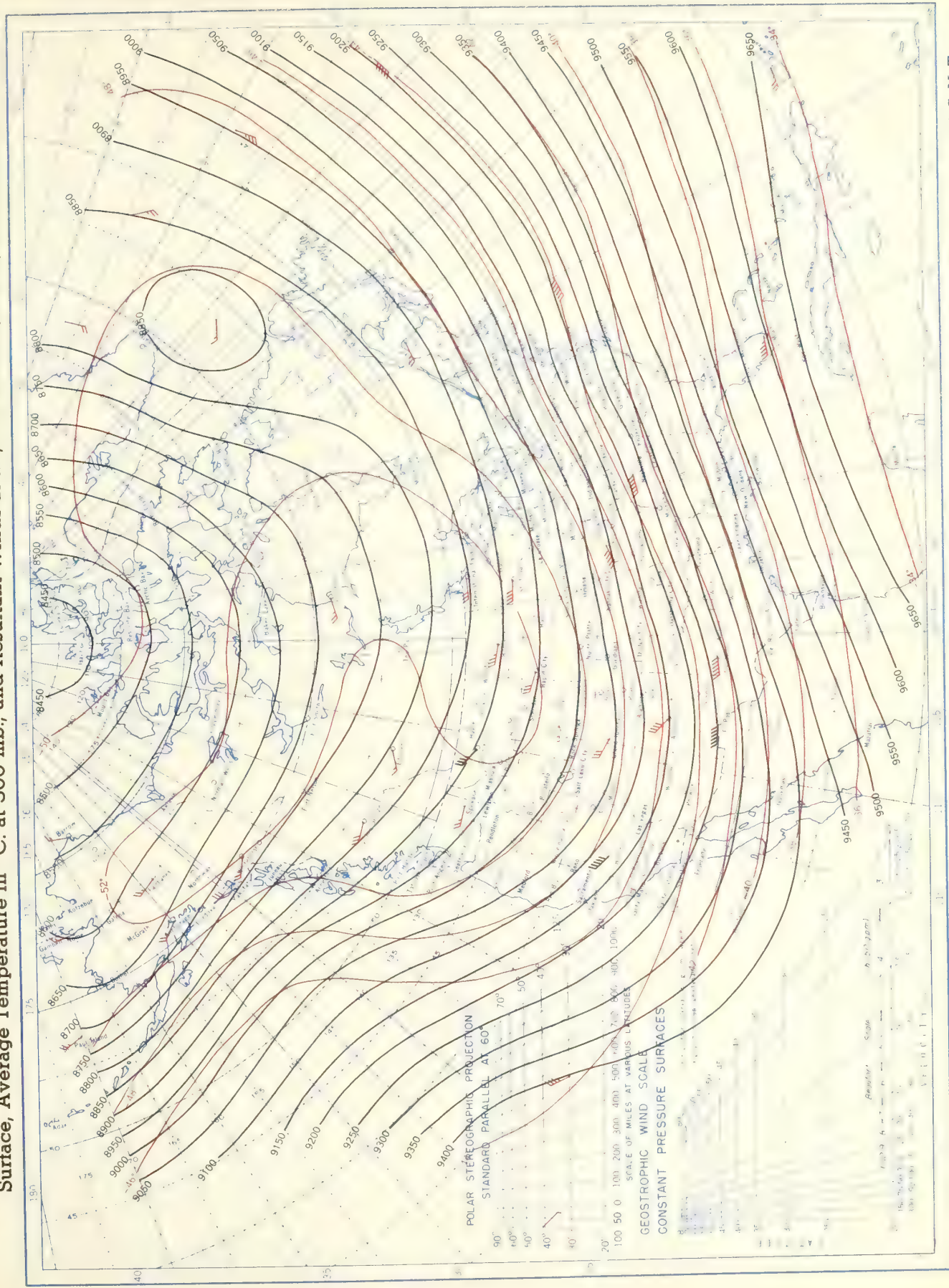


Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T.

Chart XV. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 500-mb. Pressure Surface, Average Temperature in °C. at 500 mb., and Resultant Winds at 5000 Meters (m.s.l.), March 1952.



Chart XV. Average Dynamic Height in Geopotential Meters ( $1 \text{ g.p.m.} = 0.90 \text{ dynamic meters}$ ) of the 500-mb. Pressure Surface, Average Temperature in  $^{\circ}\text{C}$ . at 300 mb., and Resultant Winds at 10,000 Meters (m.s.l.), March 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T.



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CHARLES SAWYER, Secretary

WEATHER BUREAU

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# CLIMATOLOGICAL DATA

NATIONAL SUMMARY

APRIL 1952

Volume 3 No. 4





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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

Volume 3 No. 4

APRIL 1952

### GENERAL SUMMARY OF WEATHER CONDITIONS

April was slightly warmer, drier, and sunnier than usual for this month. The most abnormal weather conditions included heavy rainfall in New Mexico and Arizona and in the coastal sections of the Middle Atlantic States, deficient precipitation and an early-season heat wave in the north-central interior, and continued drought conditions in parts of west-central and extreme southern Texas. Other unusual phenomena included disastrous floods along the Missouri and upper Mississippi Rivers, and an earthquake in the lower Great Plains. Very destructive tornadoes occurred in Ohio and Louisiana.

Temperature for the United States as a whole averaged  $53.1^{\circ}$ , which was  $0.6^{\circ}$  above the long-term mean and  $1.9^{\circ}$  above the average for April 1951. Monthly averages were generally about  $1^{\circ}$  to  $3^{\circ}$  below normal in south-central and southeastern sections of the country but above normal elsewhere, with generally small plus departures except in northeastern and extreme north-central areas where they ranged up to  $6^{\circ}$  and  $10^{\circ}$  respectively. During much of the first half of the month the weather was unseasonably cool in the eastern half of the Nation, but after the 16th above normal to much above-normal temperatures prevailed generally in all except a few extreme southern sections. There were no severe cold waves, and the only frost or freeze damage reported were some slight losses in the orchards of western Oregon. Monthly averages ranged from the middle 70's in extreme southern portions of California, Texas, and Florida to slightly below freezing at a few stations in the central Rocky Mountains. Extremes ranged from  $-21^{\circ}$  at Taylor Park, Colo. on the 1st to  $100^{\circ}$  at Falfurrias and San Benito, Tex., on the 1st and El Centro, Calif., on the 16th.

In the north-central interior, temperatures were persistently high during the latter half of the month, averaging  $15^{\circ}$  to  $20^{\circ}$  above normal and rising to mid-summer levels during the last 5 days. During this 5-day period the highest April temperatures previously recorded in Montana, North Dakota, and Minnesota were equaled, and the record high in Wisconsin,  $94^{\circ}$  in 1895, was exceeded by the  $95^{\circ}$  at Hillsboro on the 29th. At Devils Lake, N. Dak., the highest April temperature of record,  $87^{\circ}$ , was exceeded on 4 days and a new record of  $93^{\circ}$  recorded on the 27th.

Precipitation for the entire country averaged 2.33 inches, 0.14 inch below the long-term mean and 0.06 inch above the average for April 1951. Distribution was very uneven, ranging from none at several north-central stations to 563 percent of normal at Phoenix, Ariz. Monthly totals generally were less than 50 percent of normal from the Great Lakes to the Cascade Mountains, in much of the area from the Ohio River to the Gulf, and in parts of west-central and extreme southern Texas. This was the driest April on record in Montana and North Dakota, with state-wide averages of

0.32 and 0.13 inch respectively, and the third driest in Minnesota. In much of the Southwest and Northeast, on the other hand, and in the extreme southern Mississippi Valley including Louisiana, eastern Texas and Oklahoma, monthly totals were generally more than twice the normal. The average total for New Jersey was the highest of record for April, and the average for Pennsylvania for the month has been exceeded only once. The 11.82 inches of precipitation which fell at Long Pond, Pa., was the greatest April total ever recorded in that State. Precipitation in New Mexico and Arizona was greater than during any other April in the last 10 years. Camp Polk, La., measured the greatest monthly total, 14.56 inches, and the greatest 1-day amount, 9.47 inches on the 23d.

Snowfall was generally below normal, and practically all occurred during the first half of the month, except in the Southwest. Monthly averages were among the lowest on record in New York and New England, but the greatest in Pennsylvania since 1944. Measurable snow was rather general about the 8th and 13th in the north-central interior, with moderate to heavy amounts of 5 to 10 inches in parts of the upper Mississippi Valley and Great Lakes Region. Traces fell as far south as the Ohio Valley in the mid-west and the Texas Panhandle in the western Great Plains. Some snow fell at high elevations in the far West during the 4th week. East of the Rocky Mountains the snow-cover had disappeared by or soon after the 16th, and the ground remained bare during the remainder of the month except in some northeastern mountain ranges. In the western mountains the snowpack was still above normal at the end of April even with little additional that had fallen during the month.

Minor overflows along many streams in the middle Atlantic States caused some damage. For the second consecutive April, destructive floods occurred in the north-central interior, with crests at some points along the Minnesota and upper Mississippi Rivers exceeding the record stages of 1951. In addition, the greatest flood ever known in the Missouri River Basin caused even greater devastation. These floods were caused by the rapid melting of a heavy accumulation of ice and snow over a frozen surface by the warm weather during the last week of March and the first part of April.

Generally the weather was favorable for outdoor work and livestock. Small grains grew rapidly during the latter half of the month, and were improved by rains in the western portion of the lower Great Plains. In the main Corn Belt, soil preparation made normal progress, and approximately one-half of the plowing was completed. Much cotton was planted, but cool nights in many sections slowed development. Miscellaneous crops made rapid progress during the last 2 weeks and were



# GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

APRIL 1952

generally in good condition on the 30th.

On the 3d and 4th, line-squall winds and tornadoes swept across Louisiana causing losses estimated at more than \$3,500,000. On the 13th, tornado losses along a path in central and east-central Ohio were estimated at \$1,000,000. Hail-

storms caused \$1,000,000 damage in South Carolina on the 24th, and \$402,000 in Arizona on the 11th. Hail damage in Oklahoma amounted to \$1,790,300, which was greater than that of any other State. Rather general windstorms caused losses of \$2,000,000 in Pennsylvania on the 5th.

## CONDENSED CLIMATOLOGICAL SUMMARY

Table 1

APRIL 1952

Section	Temperature								Precipitation							
	Average	Departure from normal	Monthly extremes						Average	Departure from normal	Monthly extremes					
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least		
°F	°F		°F			°F		In.	In.		In.		In.			
Alabama	61.7	-1.9	7 Stations	90	*29	2 Stations	24	7	2.88	-1.60	Greenville	5.47	Guntersville City Wtr	0.98		
Arizona	57.6	-3.3	3 Stations	99	*5	Maverick	13	4	1.70	+1.05	Tonto Cr Fish Hatch	5.25	Dateland AF Base	.07		
Arkansas	58.1	-3.5	do	93	*29	Mount Magazine	23	5	5.88	+.94	Newhope	14.00	Wilson	2.17		
California	56.8	.0	El Centro	100	16	Boca	8	15	1.39	-1.16	Squirrel Inn 2	5.09	Willand	.03		
Colorado	44.6	+.7	Eversoll Ranch	90	7	Taylor Park	-21	1	1.73	.00	Lake Moraine	5.34	Walden	.05		
Connecticut	50.6	+.2	2 Stations	84	*20	Salisbury	20	12	6.38	+2.67	Wolcott Reservoir	9.26	New London	3.49		
Delaware	55.2	+2.5	do	89	*23	Georgetown	25	8	6.02	+2.50	Smyrna 3NNW	7.65	Lewes	4.42		
Florida	68.0	-1.9	do	93	*29	Raiford St. Prison	32	8	2.14	-.87	Carrabelle	4.97	Punta Gorda	.16		
Georgia	62.7	-1.3	Camilla	91	12	Blairsville Exp. Sta.	25	8	2.74	-1.06	Suches	5.72	Louisville	1.11		
Idaho	46.6	+.4	2 Stations	94	25	Obsidian 4NNE	-6	1	.76	-.61	Potlatch	1.63	Ramer 4NW	T		
Illinois	53.3	+.8	Lacon	93	29	Freeport	19	7	3.72	+.17	Bloomington	6.10	Fulton Dam	1.12		
Indiana	52.1	+.9	Spencer	89	29	Notre Dame Moreau	17	12	3.82	+.22	W.Lafayette CAA AP	7.75	2 Stations	1.98		
Iowa	50.0	+1.1	Clinton No. 1	94	29	Carroll	12	10	1.87	-.74	Glenwood 2E	4.16	Sanborn	.55		
Kansas	52.3	-2.2	Great Bend	94	8	2 Stations	11	10	3.40	+.85	Larned	6.79	Smoky Hill	1.20		
Kentucky	55.8	-.4	Pikeville	91	22	do	22	*7	2.72	-1.23	Hindman Settlement Sc.	9.17	Bowling Green WB AP	1.26		
Louisiana	63.7	-3.2	Port Sulphur	97	29	Chatham	32	6	6.75	+2.03	Camp Polk	14.56	New Orleans Jefferson	2.06		
Maine	42.5	+1.6	Millinocket CAA AP	74	27	Fort Kent 1SE	9	1	2.68	-.44	Hiram 2NW	4.75	Old Town	1.37		
Maryland	54.8	+2.5	Nat'l. Arboretum	93	23	New Germany	9	21	6.77	+3.27	Frederick WB AP	10.53	Ocean City	2.57		
Massachusetts	48.8	+3.4	Weston	84	20	2 Stations	22	12	4.08	+.52	South Egremont	6.79	New Bedford	2.03		
Michigan	45.9	+3.4	3 Stations	89	*27	Watersmeet	-10	11	2.40	-.01	Grosse Pointe Farms	4.37	Rock	.89		
Minnesota	46.7	+.4	2 Stations	96	*27	Itasca State Park	-3	10	.89	-1.16	Babbitt	2.71	Ada	.19		
Mississippi	61.7	-2.9	Clarksdale	93	29	2 Stations	20	*6	4.19	-.67	Purvis	7.33	Jackson WB AP	2.21		
Missouri	54.3	-1.1	Charleston	97	30	4 Stations	20	*7	3.73	-.31	Black 6NW	6.18	Lamar	1.83		
Montana	47.6	+.2	Hysham	97	26	Summit	-11	9	.32	-.82	Gallatin Gateway 9SSW	2.52	10 Stations	.00		
Nebraska	49.2	-.1	Nenzel 19S	93	27	2 Stations	10	10	2.31	-.06	Lincoln WB AP	5.37	Winatare 8N	.37		
Nevada	50.2	+1.0	Bunkerville	94	6	do	10	1	1.20	+.41	Tonopah	2.41	Sulphur	.04		
New Hampshire	45.0	+3.0	Windham	80	*18	First Conn Lake	13	12	3.98	+.88	Windham	6.51	Dixville Notch	1.97		
New Jersey	53.2	+3.3	Hammonton	89	22	Layton 3NW	16	12	6.67	+3.07	Layton 3NW	11.60	Bridgeton	4.50		
New Mexico	52.3	.0	Jal	94	7	Tres Piedras	6	12	1.17	+.31	Clovis	3.06	Pearl	.09		
New York	47.9	+3.6	Elmira	88	23	Roxbury	14	12	3.53	+.50	West Point	9.47	Beaver Falls	1.27		
North Carolina	59.3	+1.2	Goldsboro	94	23	Mount Mitchell	13	5	3.03	-.51	Cedar Mountain	8.28	Wanteo	.82		
North Dakota	48.5	+7.2	Pembina 2N	99	27	Portal	8	9	.13	-1.29	Amenia	1.10	Several stations	.00		
Ohio	51.4	+1.5	Ironton	91	21	4 Stations	22	*9	3.80	+.55	Utica	5.47	New Lexington 2NW	1.51		
Oklahoma	57.5	-3.0	Hollis	98	7	Beaver	15	10	4.08	+.55	Kiamichi Tower	11.89	Crescent	1.30		
Oregon	49.3	+1.4	Richland	90	*25	Seneca	5	11	1.12	-.94	Silver Creek Falls	4.69	Lake Creek SSE	.00		
Pennsylvania	50.5	+1.9	2 Stations	90	22	Pleasant Mount 1W	17	12	5.71	+2.23	Long Pond	11.82	Albion	1.82		
Rhode Island	49.4	+3.7	Providence WB City	80	*19	Kingston	24	12	3.72	-.05	Providence WB AP	4.30	Kingston	3.06		
South Carolina	61.6	-.8	Pickens 4SE	92	22	Walhalla	27	7	3.28	+.03	Caesars Head	9.51	Myrtle Beach CAA AP	.98		
South Dakota	48.6	+2.6	Shadehill Dam	97	27	Deerfield Dam	3	11	.39	-1.68	Ashton	2.56	Several stations	.00		
Tennessee	57.6	-1.1	Memphis WB AP	91	29	Crossville Exp. Sta.	23	7	2.66	-1.66	Gatlinburg 2SW	5.75	Knoxville WB AP	1.12		
Texas	63.1	-2.1	2 Stations	100	2	Vega	15	10	3.45	+.95	Bon Wier	12.98	Winter Haven	.11		
Utah	48.3	+1.3	St. George PH	87	24	Silver Lake Brighton	-2	1	1.17	-.07	Alta	3.53	Fruita	T		
Vermont	44.6	+3.0	Vernon	80	20	Lemington	15	13	3.43	+.49	Mays Mill	6.06	Enosburg Falls	1.59		
Virginia	56.0	+1.4	Walkerton	95	22	2 Stations	22	*8	4.89	+1.60	Berryville	10.27	Cape Henry WB City	1.52		
Washington	49.5	+.9	Northport	92	25	Bumping Lake	9	8	1.40	-.76	Spruce	7.00	4 Stations	T		
West Virginia	52.6	+.7	Williamson	91	*22	Birch River 6SSW	17	8	4.24	+.71	Kearneysville 1NW	10.00	Upper Sycamore Creek	3.02		
Wisconsin	47.1	+4.2	Hillsboro	95	29	Land O'Lakes	-10	11	1.61	-.86	Kenosha	3.58	Antigo	.43		
Wyoming	43.4	+2.5	Redbaird	90	27	Lake Yellowstone	-12	1	.85	-.73	Sunshine Valley	4.67	3 Stations	.00		
Alaska*	-5.4	-6.9	Dutch Harbor	58	11	Northway WB AP	-72	20	1.63	-.14	Port Alexander	29.19	Barter Island	.09		
Hawaii**	68.7	-.3	Puunene CAA AP	90	*17	Haleakala RS	34	1	10.10	+1.43	Kukui	50.00	Puako	.00		

\* Other dates also.  
 \* January 1952.  
 \*\* March 1952.



## CLIMATOLOGICAL DATA

Table 2

APRIL 1952

State and station	Elevation (ground)	Pressure		Temperature										Precipitation						Wind				No. of days		Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
		Station	Sea level	Average			Departure from normal			Highest			Lowest			No. of days		Average relative humidity	Total	Departure from normal		Greatest in 24 hours		No. of days				Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		to sunset																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
				Maximum	Minimum	Average	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F			°F	°F	°F	°F	°F	°F			°F	°F			°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F



## CLIMATOLOGICAL DATA

Table 2-Continued

APRIL 1952

State and station	Elevation (ground)	Pressure		Temperature										Precipitation										Wind				No. of days (sunrise to sunset)								
		Station	Sea level	Average			Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine			
				Maximum	Minimum	Average						Max 90° F or above	Min 32° F or below						Of inch or more	With thunderstorms	Total	Max depth on ground			Speed	Direction								Clear	Partly cloudy	Cloudy
Ft.	Mb	Mb	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	%	In.	In.	In.	In.	In.	In.	In.	In.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.			
INDIANA																																				
Evansville	385	1001.0	1016.8	66	44	55.1	+0.2	85	28	34	6	0	0	43	69	3.00	-0.90	1.19	9	0	T	11.0	NNW	38	NW	4	9	6	15	6.1	54					
Fort Wayne	801	984.1	1015.4	61	39	49.8	+1.1	82	30	23	11	0	7	39	72	4.38	+1.31	1.72	11	2	0.9	9.9	NE	31	SW	22	13	2	15	5.8	62					
Indianapolis	796	986.8	1016.3	63	41	52.0	+1.2	83	30	27	7	0	6	41	70	3.99	+3.37	1.52	11	0	.1	12.2	W	34	NW	5	12	3	15	5.8	59					
South Bend	768	988.2	1016.3	60	37	48.5	+7	82	21	22	11	0	10	37	71	2.84	-2.1	1.19	11	1	3.7	12.7	NNW	*30	NNW	5	12	3	15	5.8	--					
Terre Haute	585	995.6	1017.1	64	41	52.7	+2	87	30	27	11	0	4	41	72	3.49	-1.17	1.29	10	0	.1	9.1	--	35	SE	12	11	4	15	5.8	--					
IOWA																																				
Burlington	605	991.5	1017.5	64	41	52.3	+9	88	29	28	10	0	8	38	66	3.76	+5.56	2.23	9	1	.5	10.5	NW	34	W	2	12	4	14	5.6	71					
Charles City CO	1013	981.4	1015.4	60	38	48.9	+2.5	90	29	20	10	1	13	--	--	1.73	-1.79	.87	6	0	9.0	5	6.9	--	24	NW	2	15	5	10	4.4	61				
Davenport CO	579	995.3	1017.5	64	43	53.4	+3.5	90	29	30	10	2	3	--	--	1.58	-1.11	.63	5	2	T	--	--	--	--	--	--	--	--	--	--	--				
Des Moines	800	987.8	1018.8	61	40	50.5	+8	88	29	22	10	0	11	37	66	1.52	-1.39	.48	9	1	3.3	12.2	N	43	W	21	14	3	13	5.2	62					
Dubuque	641	977.3	1017.2	61	38	49.4	--	89	30	23	11	0	11	34	61	1.14	--	.70	6	0	1.5	11.6	--	*37	WNW	2	10	8	12	5.5	--					
Sioux City	1097	976.6	1018.9	61	38	49.4	+2.2	86	28	23	10	0	14	38	72	1.32	-1.38	.55	8	2	1.7	9.3	N	40	N	8	12	4	14	5.3	65					
KANSAS																																				
Concordia CO	1375	967.8	1017.5	61	41	51.0	-2.5	86	8	25	10	0	5	--	--	3.58	+1.22	1.08	14	5	.4	8.0	--	26	N	8	10	5	15	5.9	51					
Dodge City	2594	928.2	1016.7	62	39	50.9	-2.7	87	8	22	10	0	8	39	71	5.18	+3.24	2.01	13	7	T	15.4	SE	54	NE	8	10	9	11	5.4	64					
Goodland	3645	888.6	1016.4	62	34	48.0	-1.8	85	7	19	10	0	13	33	64	1.98	+1.15	.82	11	3	1.0	13.8	SSE	*37	SSE	15	12	8	10	5.1	--					
Topeka	926	982.1	1018.3	64	42	53.0	--	87	30	26	10	0	7	42	72	3.84	--	.99	10	3	0	11.1	NNW	37	S	21	10	5	15	6.1	60					
Wichita	1372	968.2	1017.3	64	43	53.9	-2.5	83	30	26	10	0	5	40	68	1.97	-1.94	.56	11	2	T	0	14.3	S	42	S	8	11	3	16	5.8	64				
KENTUCKY																																				
Lexington	979	980.0	1016.2	66	43	51.7	+4	84	21	30	7	0	2	42	67	2.06	-1.44	.62	13	2	T	11.1	NNE	--	--	--	9	4	17	6.1	--					
Louisville CO	457	999.3	1015.8	67	47	56.8	+4	85	28	36	11	0	0	--	--	1.94	-1.94	.58	--	2	0	0	--	--	--	--	--	--	--	--	--	--				
Louisville	485	999.3	1015.8	67	44	55.7	+9	85	28	33	8	0	0	43	66	1.85	-2.03	.51	11	2	T	0	9.4	N	35	NW	28	9	6	15	6.2	54				
LOUISIANA																																				
Baton Rouge	64	1016.9	1017.2	76	53	64.6	-3.3	92	30	42	6	1	0	52	71	5.84	+1.45	2.56	6	3	0	8.8	SE	--	--	--	14	6	10	4.5	--					
Lake Charles	12	1016.9	1017.4	76	56	65.6	-1.8	87	30	45	5	0	0	55	76	9.75	+5.39	3.52	7	5	T	0	11.6	N	--	--	--	14	6	10	4.5	--				
New Orleans CO	12	1015.2	1017.2	77	59	67.7	-1.1	89	30	50	5	0	0	--	--	3.56	-1.68	2.36	4	2	0	7.3	--	27	SW	4	14	9	7	3.9	78					
New Orleans	12	1016.3	1017.6	76	55	65.6	--	88	30	43	6	0	0	53	70	4.82	--	2.63	3	2	0	10.5	S	*48	NW	4	15	8	7	3.9	--					
Shreveport	174	1008.1	1017.1	74	51	62.0	-4.2	88	30	40	5	0	0	50	70	5.34	+7.71	3.26	5	3	0	8.6	SSE	31	NW	4	13	3	14	5.1	65					
MAINE																																				
Caribou	624	990.5	1013.9	47	29	37.6	+2.0	68	27	14	1	0	26	25	64	2.49	-2.28	.72	11	2	3.3	19	11.2	NW	*35	W	24	5	10	15	6.7	--				
Eastport CO	33	1011.2	1014.2	49	35	41.7	+2.7	66	20	27	12	0	9	--	--	2.41	-1.43	1.04	13	0	T	10.2	--	42	E	6	8	6	16	6.8	50					
Portland	61	1010.5	1014.6	54	34	43.8	+3.7	73	20	25	12	0	13	35	74	4.15	+7.77	1.36	11	0	T	9.4	WNW	40	NW	20	8	4	18	6.8	50					
MARYLAND																																				
Baltimore CO	14	1010.2	1014.9	65	49	57.2	+3.6	86	20	37	8	0	0	--	--	8.18	+4.84	2.77	14	--	0	0	--	--	--	--	--	--	--	--	--	--				
Baltimore	146	1010.2	1014.9	65	46	55.5	+2.3	87	23	31	8	0	1	41	64	8.15	+4.44	2.80	14	--	T	12.6	--	W	50	--	--	--	--	--	--	--				
Frederick	294	1010.2	1014.9	66	43	54.6	+1.7	84	23	27	8	0	4	--	--	10.53	+7.03	2.72	15	3	0	--	--	--	--	--	--	--	--	--	--	--				
MASSACHUSETTS																																				
Blue Hill Obs.	640	990.6	1017.2	57	40	48.2	+4.4	78	19	28	12	0	1	--	64	3.46	-1.35	1.49	10	0	T	0	15.0	--	W	20	7	6	17	6.9	44					
Boston	12	1009.5	1014.1	58	43	50.5	+4.1	80	19	34	12	0	0	35	62	4.41	+1.07	2.02	11	0	0	0	13.8	NNW	36	NE	28	7	6	17	6.9	46				
Nantucket	43	1013.9	1014.5	52	40	46.4	+3.0	65	18	30	10	0	1	40	80	2.59	-1.37	1.75	9	3	0	0	13.2	SW	33	SE	14	6	18	7.1	52					
Pittsfield	1153	971.6	1014.2	57	36	46.3	+5.4	76	22	22	12	0	9	--	--	4.45	+1.35	1.33	10	0	.3	0	--	--	--	--	--	7	5	18	7.0	--				
MICHIGAN																																				
Alpena CO	587	989.8	1017.2	53	36	44.6	+6.0	80	27	21	11	0	10	--	--	2.89	+6.5	1.70	8	0	9.3	7	11.4	--	35	E	13	12	3	15	5.5	68				
Detroit	519	988.5	1015.5	59	40	49.6	+4.0	82	21	26	11	0	6	35	64	3.45	+9.9	1.29	11	2	T	10.9	NNE	34	SW	22	9	4	17	6.0	60					
Escanaba CO	694	994.2	1016.2	52	35	43.3	+5.4	79	19	16	11	0	14	--	--	1.31	-.92	.75	6	1	7.2	5	11.1	--	43	N	6	12	7	11	4.9	77				
Grand Rapids	638	990.9	1016.2	59	36	47.6	+3.1	83	30	21	11	0	10	36	68	2.70	-.07	1.28	10	2	10.5	5	10.6	W	29	W	1	11	5	14	5.8	56				
Lansing	859	983.7	1016.3	57	37	47.1	+1.8	80	21	21	11	0	9	36	71	3.32	+7.4	1.08	11	0	11.5	7	13.2	W	36	N	15	11	4	15	5.6	57				
Marquette	677	989.5	1016.2	53	36	44.4	+6.6	82	27	16	11	0	13	--	--	1.31	-1.12	.52	7	0	7.7	5	8.5	--	28	S	8	10	7	13	6.0	63				
Muskegon	627	992.9	1016.3	57	36	46.4	+2.7	79	28	18	11	0	10	35	70	2.91	+1.25	1.91	11	1	3.8	1	9.7	W	*26	NW	6	11	4	15	5.7	--				
Sault Ste. Marie	733	993.2	1016.3	53	31	42.2	+5.7	77	29	15	11	0	18	31	69	1.15	.98	.51	9	0	6.0	2	9.4	NW	30	NW	6	11	6	13	5.7	70				
Ypsilanti	722	986.8	1015.3	60	40	49.7	--	84	21	24	11	0	7	35	64	3.58	--	1.04	11	2	.7	11.1	NE	*30	ENE	12	10	4	16	5.9	--					
MINNESOTA																																				
Duluth	1128	976.3	1017.8	56	32	44.4	--	88	27	12	10	0	17	30	63	.77	--	.36	6	0	3.2	24	11.5	E	45	NW	1	16	3	11	4.6	72				
Intern'l. Falls	1179	973.9	1017.8	60	30	45.1	+6.9	93	27	8	10	3	20	28	60	.45	-1.29	.22	4	0	4.2	3	--	--	--	--	--	14	9	7	4.2	--				
Minneapolis	830	985.1	1019.0	61	40	50.1	+3.7	92	29	23	10	2	10	34	62	.59	-1.64	.30	4	1	.6	T	10.9	N	40	N	13	15	4	11	4.5	70				
Rochester	1014	1015.2	1018.7	59	35	46.9	+2.2	90	30	13	11	1	15	33	66	2.09	-.27	.83	6	2	11.5	6	9.7	SE	--	--	--	12	7	14	4.9	--				
St. Cloud	1034	980.0	1018.5	59	35	46.7	+2.3	87	30	19	10	0	17	34	69	.92	-1.20	.82	5	1	T	3	7.1	NNW	--	--	--	15	3	12	4.8	--				
St. Paul	703	987.1	1017.6	62	40	50.7	+5.1	93	30	23	10</																									



## CLIMATOLOGICAL DATA

Table 2-Continued

APRIL 1952

State and station	Elevation (ft)	Pressure			Temperature								Precipitation							Wind			No of days																												
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Precipitation		No. of days	Snow, Sleet, Hail	Average hourly speed	Prevailing direction	Fastest mile	(sunrise to sunset)																												
												Max. 90° F or above	Min. 32° F or below			Total	Greatest in 24 hours								With thunderstorms	Total	Max. depth on ground																								
																												Average	Total	Greatest in 24 hours	No. of days	With thunderstorms	Total	Max. depth on ground	Average hourly speed	Prevailing direction	Fastest mile	(sunrise to sunset)													
																																								Average	Total	Greatest in 24 hours	No. of days	With thunderstorms	Total	Max. depth on ground	Average hourly speed	Prevailing direction	Fastest mile	(sunrise to sunset)	
Fl	Mb	Mb	F	F	F	F	F	F	F	F	%	In	In	In	In	In.	M	M	0-3	4-8	8-10	%																													
NEVADA																																																			
Elko	5075	844.2	1015.5	61	33	47.1	----	76	24	21	9	0	16	31	57	0.87	-----	0.52	8	2	T	T	6.8	E	*30	NW	7	11	8	11	5.5	--																			
Ely	6257	808.0	1015.6	66	30	43.0	+2.6	71	23	15	1	0	20	---	---	1.77	+0.71	.35	11	3	1.0	3	10.6	---	40	SE	*25	10	8	12	5.3	66																			
Las Vegas	2162	946.5	1011.3	77	51	64.1	+2.5	91	6	44	12	1	0	31	35	.57	+0.31	.72	7	3	.0	0	6.5	---	40	SE	19	16	6	4	4.3	76																			
Reno	4397	859.1	1014.6	65	31	47.8	+1.7	76	23	21	15	0	18	29	50	1.63	+1.16	1.60	3	1	T	T	5.0	WNW	38	S	2	14	5	11	4.7	77																			
Winnemucca	4299	867.3	1015.0	66	33	49.4	+2.7	78	23	21	8	0	13	32	54	.45	-1.39	.24	5	2	.0	0	8.6	---	48	W	13	10	7	13	3.8	78																			
NEW HAMPSHIRE																																																			
Concord	339	1003.4	1014.8	58	35	46.8	+5.2	78	19	25	17	0	12	35	67	4.45	+1.67	1.43	9	0	.0	2	6.4	NW	33	W	20	8	6	16	6.7	54																			
Mt. Washington	6262	802.2	1017.3	32	18	25.3	+1.9	44	29	-1	12	0	30	--	81	3.90	3.05	2.36	10	0	8.2	21	31.4	NW	*102	SE	5	6	8	16	7.0	57																			
NEW JERSEY																																																			
Atlantic City CO	8	1012.2	1014.2	59	47	52.8	+5.0	85	23	35	8	0	0	--	--	6.94	+3.93	1.04	14	2	.0	0	17.6	---	52	SE	5	8	6	16	6.6	57																			
Newark	11	1013.2	1014.3	63	45	53.9	+4.7	84	20	35	12	0	0	41	66	6.01	+2.99	1.77	13	1	T	0	12.5	WSW	*30	SW	6	3	9	20	7.5	--																			
Trenton CO	56	1007.1	1014.2	63	46	54.5	+4.7	83	22	34	12	0	0	--	--	5.93	+2.99	2.46	13	2	.0	0	10.2	---	*30	S	5	4	9	17	7.3	46																			
NEW MEXICO																																																			
Albuquerque	5310	847.3	1011.6	70	42	55.9	+1.9	81	7	33	11	0	0	28	40	.76	+1.16	.55	6	5	T	T	11.0	N	54	S	27	10	13	7	4.8	72																			
Clayton	4969	844.6	1014.4	65	36	50.3	-1.0	82	7	14	10	0	10	33	57	2.90	+1.93	1.34	9	6	1.0	T	-----	---	---	---	---	13	9	7	4.7	--																			
Raton	6379	804.3	1014.0	61	31	46.3	----	77	7	16	10	0	18	---	---	.37	-----	.20	8	1	.2	T	-----	---	---	---	---	9	8	13	5.8	--																			
Roswell	3611	892.3	1012.9	74	44	59.2	-1.4	88	7	30	10	0	1	--	--	1.02	+1.13	.69	5	3	.0	0	11.3	---	47	NW	8	13	11	6	4.4	81																			
NEW YORK																																																			
Albany	277	1006.4	1014.1	61	40	50.3	+5.9	79	22	26	12	0	3	36	63	3.92	+1.78	1.24	13	0	0	T	8.7	WNW	42	W	20	5	8	17	7.1	49																			
Bear Mountain	1300	-----	-----	57	41	49.1	----	79	22	27	12	0	3	---	---	8.54	-----	3.37	11	0	T	0	-----	---	---	---	---	3	4	23	7.9	--																			
Binghamton	1601	955.0	1014.3	57	38	47.3	----	72	19	21	12	0	8	35	69	3.57	-----	.74	15	3	.6	T	12.9	NW	42	SE	5	3	7	20	7.9	47																			
Buffalo	693	986.1	1015.2	58	38	48.3	+4.4	75	21	28	11	0	5	37	71	2.56	-.00	.69	15	0	.6	T	13.3	SW	40	SW	6	6	9	15	6.9	52																			
New York CO	11	1002.0	-----	61	47	53.9	+4.5	81	20	35	12	0	0	--	--	5.80	-----	1.76	12	1	T	T	11.0	---	56	A	20	4	7	19	7.4	44																			
New York	19	1012.9	1014.4	62	47	54.8	----	82	20	35	12	0	0	11	65	6.58	+2.78	.73	11	2	T	T	13.1	NE	43	SE	29	4	9	17	7.5	--																			
Oswego CO	292	1002.0	1014.6	55	40	47.0	+4.4	75	22	27	11	0	3	--	--	1.56	-----	.39	11	3	T	T	9.2	---	29	SE	5	8	6	16	6.3	50																			
Rochester	543	995.6	1014.9	59	38	48.8	+3.9	79	22	28	11	0	5	38	70	2.60	+2.25	1.31	15	2	T	0	11.6	WSW	44	SW	6	6	9	15	6.8	56																			
Schenectady	217	-----	-----	60	41	50.4	+4.8	78	22	28	12	0	3	--	--	1.34	+1.43	1.44	12	0	.0	0	4.3	---	35	W	20	11	9	10	5.2	--																			
Syracuse	399	992.9	1015.1	60	40	49.5	+6.5	78	22	28	11	0	3	37	65	2.57	+1.10	.83	12	3	T	T	10.6	WNW	34	NW	20	5	7	18	7.3	49																			
NORTH CAROLINA																																																			
Asheville CO	2203	-----	-----	68	44	55.9	+2.0	84	22	30	8	0	3	--	--	3.72	+4.70	1.49	8	4	T	0	9.2	---	17	SE	13	12	5	13	5.3	67																			
Asheville	2093	941.8	1015.5	--	--	-----	----	---	---	---	---	0	---	47	70	---	---	---	---	---	---	---	---	8.0	WNW	42	W	20	5	8	17	7.1	49																		
Charlotte	753	987.5	1015.0	72	48	59.8	+1.7	86	21	33	7	0	0	45	63	3.53	+2.22	1.67	9	4	.0	0	7.2	S	29	SE	13	12	9	9	4.8	75																			
Greensboro	891	983.7	1015.7	70	46	58.0	+1.7	88	21	31	8	0	1	43	63	3.94	+3.27	1.56	9	1	.0	0	10.7	NE	32	S	13	13	6	11	5.1	56																			
Hatteras	4	1014.6	1015.1	68	56	62.2	+2.4	77	21	48	7	0	0	55	79	1.92	-1.62	.81	9	1	.0	0	12.6	SSW	34	SW	5	13	7	10	4.7	69																			
Raleigh CO	400	-----	-----	72	50	60.9	+1.5	91	20	35	7	3	0	--	--	2.77	-----	1.21	10	1	.0	0	6.9	---	27	SW	5	15	6	9	4.5	74																			
Raleigh	438	999.3	1015.0	72	47	59.3	----	90	22	33	8	2	0	45	64	2.47	-----	1.00	10	1	.0	0	8.8	SW	---	---	---	13	6	11	4.9	--																			
Wilmington	30	1014.2	1015.6	73	52	62.7	+7.8	89	21	39	17	0	0	52	73	1.50	-1.16	.43	8	1	.0	0	11.3	SW	32	SW	5	13	9	8	4.4	71																			
Winston-Salem	967	980.0	1015.3	70	48	58.9	+1.6	89	21	34	6	0	0	41	56	3.42	-.00	1.03	8	1	.0	0	11.1	NE	---	---	---	12	7	11	4.9	--																			
NORTH DAKOTA																																																			
Bismarck	1653	956.7	1017.6	64	33	48.5	+8.1	92	28	20	10	3	17	32	63	T	-1.52	T	0	0	.0	3	9.6	SSE	38	NW	8	15	11	4	3.4	83																			
Devils Lake CO	1471	963.4	-----	63	35	48.7	+9.9	93	27	16	10	3	15	---	---	.04	-1.48	.02	2	0	T	T	9.0	---	27	N	8	17	8	5	3.6	84																			
Fargo	895	983.4	1018.3	60	36	48.0	+7.4	90	27	21	10	1	14	34	66	.24	-1.94	.18	2	1	1.8	2	13.3	SSE	39	NW	2	16	6	8	3.7	74																			
Williston CO	1877	948.2	1016.4	65	37	51.1	+9.1	91	28	18	9	2	11	30	53	.16	-1.04	.16	2	0	1.6	2	6.6	---	26	W	1	14	11	5	4.1	92																			
OHIO																																																			
Akron	1210	977.3	1015.8	59	38	48.8	+9.8	81	21	28	11	0	9	38	72	3.25	+2.24	.78	13	0	1.0	1	10.8	WNW	---	---	---	8	5	17	6.8	--																			
Cincinnati Obs.	761	-----	-----	65	44	54.7	+2.3	85	21	31	11	0	2	---	---	3.53	+4.41	1.65	11	1	T	0	7.6	---	22	W	5	---	---	---	---	54																			
Cincinnati	871	983.7	1015.7	64	43	53.3	+1.2	82	30	29	7	0	2	39	64	3.10	-.49	1.35	11	1	T	0	10.5	NNE	---	---	---	8	7	15	6.3	--																			
Cleveland CO	663	-----	-----	57	42	49.5	+3.3	80	22	31	11	0	2	---	---	2.89	+4.55	.64	13	0	---	---	---	---	---	---	---	10	11	9	5.3	--																			
Cleveland	787	982.1	1015.5	60	40	50.1	+3.9	86	21	30	6	0	6	39	70	3.81	+1.37	.91	14	0	7.8	4	11.4	N	35	NW	10	8	5	17	6.5	56																			
Columbus	724	-----	-----	63	43	51.9	+2.3	84	21	29	8	0	4	40	69	4.07	+1.20	1.74	12	1	T	T	9.7	NW	40	W	13	9	5	16	6.3	52																			
Columbus	815	985.1	1015.5	62	43	53.0	+1.8	83	21	30	7	0	5	40	69	3.60	-.00	.54	12	3	T	T	10.9	N	38	W	3	10	2	18	6.5	52																			
Dayton	1002	979.3	1016.1	62	41	61.5	+1.0	81	21	29	7	0	5	40	69	3.60	-.00	.54	12	3	T	T	10.9	N	38	W	3	10	2	18	6.5	52																			
Sandusky CO	603	992.2	-----																																																

See footnotes at end of table.



## CLIMATOLOGICAL DATA

Table 2-Continued

APRIL 1952

State and station	Pressure						Temperature						Precipitation						Wind				No of days											
	Elevation (ground)	Station	Sea level	Average maximum			Average minimum			Departure from normal	Highest			Lowest			No. of days			No of days			Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		(sunrise to sunset)		Sky cover, % (sunrise to sunset)	Possible sunshine		
				Average	Average	Average	Highest	Date	Lowest		Date	Max. 90° F or above	Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	.01 inch or more	With thunderstorms	Total	Max depth on ground	Speed	Direction			Date	Clear	Partly cloudy	Cloudy				
				°F	°F	°F	°F	°F	°F		°F	°F	°F	°F	°F	In.	In.	In.	In.	In.	In.	M	M	M			M	O-3	4-7	8-10			%	
				Ft	Mb	Mb	°F	°F	°F		°F	°F	°F	°F	°F	In.	In.	In.	In.	In.	In.	M	M	M			M	O-3	4-7	8-10			%	
				Pt	Mb	Mb	°F	°F	°F		°F	°F	°F	°F	°F	In.	In.	In.	In.	In.	In.	M	M	M			M	O-3	4-7	8-10			%	
SOUTH CAROLINA																																		
Charleston CO	9	1014.2		72	56	64.2	-0.3	80°11	42	6	0	0	--	4.14	+1.61	2.69	9	4	0.0	0	9.8	---	33	SE	13	16	7	7	4.2	70	---			
Charleston SC	41	1014.6	1016.3	74	51	62.7	+6	84	21	38	7	0	0	52	72	2.30	-8.3	.76	9	5	0	8.9	SSW	---	---	14	7	9	4.8	---				
Columbia CO	332	1003.1		74	52	63.2	-1	89	21	37	6	0	0	--	3.60	+1.71	1.03	10	6	0	8.4	---	30	SE	13	17	3	10	4.3	75	---			
Columbia SC	217	1007.5	1015.6	76	49	62.5	---	91	21	32	7	1	1	48	66	3.10	---	.68	10	8	0	---	SSW	---	---	14	6	10	4.2	---				
Florence	146	1010.2	1015.2	74	50	61.9	---	88	21	36	7	0	0	---	2.58	---	.61	9	3	0	0	---	---	---	---	13	6	11	4.7	---				
Greenville	1006	977.7	1014.9	72	50	61.1	+2.5	86	21	36	6	0	0	44	59	3.13	-1.59	1.69	6	2	0	9.6	N	37	SE	13	14	5	11	4.5	76	---		
Spartanburg	801	985.4	1014.9	72	50	61.0	+1.8	87	21	35	6	0	0	--	3.82	+1.32	2.27	10	4	0	0	---	---	---	---	14	6	10	4.5	---				
SOUTH DAKOTA																																		
Huron	1282	971.2	1018.4	61	37	48.8	+3.7	89	27	19	10	0	13	35	68	.30	-1.94	.24	3	0	T	T	12.2	SSE	33	SE	11	13	7	10	4.7	74	---	
Rapid City	3215	902.1	1016.9	65	36	50.2	+6.1	89	26	19	10	0	11	29	51	.32	-1.11	.10	5	0	.3	T	11.7	NNW	57	NW	8	15	8	7	4.2	77	---	
Sioux Falls	1420	-----	1018.6	60	38	48.9	+1.8	85	28	23	10	0	9	35	67	1.35	-.98	1.16	4	0	.9	T	11.1	S	30	NNW	2	11	6	13	5.4	---		
TENNESSEE																																		
Bristol	1519	961.4	1015.6	68	45	56.0	-1.4	85	21	29	8	0	2	41	63	3.44	-.03	.97	12	3	T	0	7.9	W	*36	N	25	9	7	14	6.0	---		
Chattanooga	670	988.5	1015.9	73	47	60.1	+2.5	85	30	28	7	0	1	45	63	1.56	-3.29	.52	7	4	T	0	7.2	NNE	52	SE	4	16	4	10	4.5	70	---	
Knoxville	949	980.7	1016.1	71	48	59.3	+2.0	85	22	32	7	0	0	51	73	1.12	-3.02	.33	8	4	T	0	8.7	W	38	W	4	11	6	13	5.6	49	---	
Memphis CO	271	-----	-----	68	52	59.9	-1.9	88	29	39	6	0	0	---	2.24	-2.54	1.20	8	0	0	---	---	---	---	---	---	---	---	---	---	---	---	---	
Memphis TN	263	1002.4	1017.3	69	48	58.9	-2.9	91	29	36	7	1	0	46	67	2.25	-2.45	1.51	8	1	0	11.1	NW	32	W	4	11	5	14	5.8	54	---		
Nashville	577	996.6	1016.6	70	46	57.7	-1.3	84	28	32	7	0	1	44	64	2.01	-2.12	.79	9	3	T	0	7.5	NW	37	W	4	10	7	13	5.8	52	---	
TEXAS																																		
Abilene	1752	953.0	1015.0	77	50	63.1	+1.1	91	7	33	10	1	0	40	52	2.04	-.67	1.85	7	5	T	T	14.1	SSE	52	SE	11	14	8	8	4.3	81	---	
Amarillo	3590	888.9	1014.5	68	40	54.4	+6	88	7	20	10	0	4	34	57	2.46	+6.3	.91	8	8	T	T	12.9	SSE	47	N	9	15	6	9	4.5	69	---	
Austin	515	995.3	1017.1	71	48	59.3	-3.5	85	30	39	10	0	1	45	63	1.08	-1.74	1.89	7	4	T	0	9.8	SE	34	N	4	16	4	10	4.5	70	---	
Big Spring	2533	926.2	1014.1	76	51	63.6	-4	90	7	30	10	1	1	38	47	.43	-1.29	.21	6	3	0	0	16.2	S	---	---	18	7	5	3	7	---		
Brownsville	16	1013.2	1015.1	81	64	72.5	-1.2	92	12	50	10	2	0	61	76	.45	-1.28	1.14	4	0	0	0	14.8	SE	36	SE	9	8	16	6	7	50	---	
Corpus Christi	40	1015.6	1016.5	78	60	69.4	+4	89	1	46	6	0	0	60	79	3.17	+1.39	1.94	6	2	0	0	14.0	SE	37	N	9	8	6	13	6.0	58	---	
Dallas	487	998.0	1016.7	73	51	62.1	-3.0	86	30	36	5	0	0	47	64	5.69	+1.43	1.99	9	5	T	---	14.3	SE	52	SW	12	15	6	9	4.6	78	---	
Del Rio	957	980.7	1014.5	81	57	69.0	-1.6	91	21	43	10	2	0	49	57	1.31	-.48	.85	5	2	0	0	9.9	FSE	34	W	12	11	8	11	5.2	70	---	
El Paso	3920	879.8	1011.2	75	51	63.0	-1.7	85	7	40	10	0	0	32	37	1.08	+8.2	.89	5	2	T	T	11.2	SW	47	W	11	12	10	8	4.4	84	---	
Fort Worth	688	992.2	1016.9	74	51	62.5	-1.6	88	7	36	10	0	0	46	64	6.51	+2.49	2.40	10	7	T	0	14.3	SE	*55	WNW	12	17	4	9	4.1	---		
Galveston CO	7	-----	-----	71	61	66.3	-2.4	79	30	47	10	0	0	56	71	3.24	+1.18	1.03	7	0	0	0	12.8	S	56	N	12	---	---	---	---	---		
Galveston TX	7	1016.6	1017.4	72	61	66.2	-2.5	78	30	45	10	0	0	59	79	2.75	-.31	1.17	7	8	0	0	11.9	SE	---	---	13	8	9	4.7	---			
Houston CO	41	1012.2	-----	75	57	66.0	-3.3	85	1	45	10	0	0	---	5.44	+1.86	2.04	9	5	0	0	12.0	---	36	SE	21	12	7	11	5.0	64	---		
Houston TX	41	1014.6	1017.3	75	55	64.9	-2.9	85	1	41	5	0	0	54	73	6.12	+2.90	2.14	10	5	0	0	14.1	SSE	---	---	12	6	12	5.2	---			
Laredo	500	999.0	1014.2	85	62	73.8	-1.4	97	21	50	11	9	0	56	60	.13	-1.07	.10	2	1	0	0	15.4	SE	32	SE	8	5	12	13	6.4	---		
Lubbock	3238	902.8	1014.0	71	44	57.6	-2.1	88	8	26	10	0	2	37	55	2.30	+8.8	.62	7	9	T	T	15.2	S	*38	N	9	16	6	8	4.0	---		
Palestine CO	491	999.0	-----	73	52	62.6	-3.4	84	30	41	10	0	0	---	5.21	+8.0	1.32	8	5	0	0	8.3	---	28	SE	3	11	9	10	4.9	71	---		
Port Arthur CO	5	1016.3	-----	74	59	66.5	-2.0	85	30	46	5	0	0	---	6.86	+3.87	1.90	8	5	T	T	13.6	4	S	12	15	6	9	4.5	70	---			
Port Arthur TX	5	1016.3	-----	75	55	64.8	-2.0	85	30	46	5	0	0	56	71	6.98	---	3.22	8	6	T	T	11.0	SE	---	---	12	13	10	4.7	---			
San Angelo	1903	948.2	1015.0	77	52	64.2	-2.0	88	3	33	10	0	0	41	50	1.06	-.93	.54	4	4	0	0	11.4	SSE	*35	NW	12	13	9	8	4.4	---		
San Antonio	782	991.5	1016.2	77	55	65.7	-3.4	90	1	42	5	1	0	50	64	3.40	+2.1	1.49	6	1	0	0	10.9	SE	45	SE	8	14	6	10	5.1	69	---	
Victoria	109	1011.9	1016.7	77	57	66.8	-3.8	89	1	44	10	0	0	56	74	2.74	-.04	.84	7	5	0	0	10.0	---	*51	N	9	10	8	12	5.9	---		
Waco	504	997.6	1016.4	74	52	63.1	-4.0	85	7	38	5	0	0	51	70	5.49	+1.25	2.16	8	6	0	0	12.8	SSE	---	---	14	7	9	4.5	---			
Wichita Falls	1027	979.0	1015.8	74	49	61.3	-3.6	90	7	30	10	1	1	43	59	2.47	-1.17	1.19	7	4	0	0	12.5	ESE	*43	NW	3	16	9	5	3.9	---		
UTAH																																		
Milford	5028	845.2	1015.0	63	34	48.3	+4.4	78	24	21	9	0	14	---	.76	-.08	1.04	5	2	T	T	---	---	---	---	---	11	8	11	5.2	---			
Salt Lake City	4222	866.2	1014.2	63	41	51.8	+3.9	80	24	30	1	0	2	36	59	1.86	+1.5	.59	4	8	1	T	0	8.7	SSE	38	S	27	9	11	10	5.4	70	---
VERMONT																																		
Burlington	331	999.3	1014.3	57	35	45.9	+2.6	74	27	27	16	0	9	34	66	2.63	+4.8	.79	12	0	T	T	9.0	N	33	SE	5	7	6	17	6.5	49	---	
VIRGINIA																																		
Cape Henry CO	16	1013.2	1013.9	65	52	58.5	+3.9	92	22	42	10	2	0	---	1.52	-1.78	.71	8	0	0	0	12.4	---	39	NE	23	10	9	11	5.5	59	---		
Lynchburg	947	981.0	1015.1	67	46	56.7	+1.1	89	22	34	8	0	0	40	60	3.60	+6.5	1.16	13	2	T	0	10.4	NNE	29	S	5	11	6	13	6.0	49	---	
Norfolk CO	11	1011.2	1014.6	69	52	60.5	+3.8	91	22	41	7	0	0	40	60	2.16	-1.07	1.06	13	1	0	0	9.1	---	32	S	13	---	---	---	---	---		
Norfolk VA	25	1012.9	1014.6	68	50	59.2	+5.1	91	22	38	10	1	0	47	68	2.22	-1.01	1.26	13	0	0	0	10.1	NE	---	---	9	10	11	5.6	---			
Richmond CO	162	-----	-----	69	48	58.7	+2.1	91	22	35	8	1	0	---	4.99	+1.50	2.07	11	0	0	0	---	---	---	---	---	10	11	---	---	---	---		
Richmond																																		

See footnotes at end of table.



## CLIMATOLOGICAL DATA

Table 2-Continued

APRIL 1952

State and station	Elevation (ground)	Pressure			Temperature										Precipitation					Wind					No of days							
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max 90° F or above	Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No of days 0.1 inch or more	Snow, Sleet, Hail	Average hourly speed	Prevailing direction	Fastest mile	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine		
Ft.	Mb.	Mb.	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	%	In.	In.	In.	In.	In.	In.	M p h.	M p h.										
PACIFIC AREA																																
Canton Island	9	1009.1	1009.6	90	79	84.6	----	96	15	74	28	16	0	76	81	2.67	----	1.13	14	1	0.0	0	----	---	---	---	---	---	---	---	---	---
Hilo	28	1017.6	1019.0	77	63	70.1	----	81	16	61	11	0	0	63	81	11.39	----	3.08	28	0	0	5.3	SW	19	SE	20	1	6	23	8.5	31	
Honolulu CO	12	-----	-----	77	68	72.6	-0.4	79	16	65	7	0	0	---	---	1.35	-1.35	2.2	16	0	0	0	---	---	---	---	---	---	---	---	---	---
Honolulu	7	1019.0	1019.7	79	68	73.3	----	81	16	65	6	0	0	61	67	1.35	----	1.4	7	0	0	14.3	ENE	29	NE	10	1	18	8	6.0	76	
Koror	117	1005.8	1009.4	89	74	81.6	----	91	18	72	3	17	0	---	---	15.38	----	4.96	20	2	0	0	---	---	---	---	---	---	---	---	---	---
Lihue	115	1014.6	1020.0	78	66	72.1	----	79	18	61	14	0	0	63	73	1.49	----	2.25	20	0	0	14.6	NE	29	NE	6	3	15	12	6.7	41	
Moan Is., Truk Gp.	3	1011.5	1011.7	87	77	81.6	----	89	18	73	24	0	0	---	---	5.62	----	1.55	19	0	0	0	---	---	---	---	---	---	---	---	---	---
Ponape	109	1007.1	1012.3	88	75	81.4	----	91	10	71	13	7	0	---	---	11.88	----	2.63	19	0	0	0	---	---	---	---	---	---	---	---	---	---
Wake Island	9	1016.3	1016.6	83	75	78.9	----	86	7	71	22	0	0	71	78	2.42	----	5.56	19	0	0	17.2	ENE	---	---	---	---	---	---	---	---	---
Yap	51	1008.8	1011.5	88	77	82.8	----	90	25	74	2	6	0	---	---	6.82	----	3.15	17	0	0	0	---	---	---	---	---	---	---	---	---	---
WEST INDIES																																
San Juan, P.R. CO	47	-----	-----	83	72	77.5	+9	92	30	68	12	1	0	---	---	5.79	+1.43	1.64	19	2	0	0	---	---	---	---	---	---	---	---	---	---
San Juan, P.R.	9	1012.5	1014.6	85	72	78.3	----	91	30	69	8	2	0	71	78	7.05	----	1.46	16	2	0	8.2	ESE	34	N	22	2	23	5	6.1	69	
ALASKA																																
Anchorage	134	998.0	1003.1	42	24	33.0	-2.4	48	21	1	2	0	30	24	67	1.32	-0.08	1.18	5	0	3.2	5	5.1	NF	25	S	22	7	3	20	7.1	56
Annette Island	110	1007.1	1011.1	45	36	40.4	-2.1	56	30	30	5	0	3	36	80	8.60	0.26	1.23	21	0	1.0	15.8	SE	40	SE	16	0	6	24	1.1	---	
Barrow	22	1012.2	1012.8	3	-13	-5.0	-4.6	27	30	-27	15	0	30	-11	67	0.08	0.04	0.03	4	0	8.8	16	10.0	ESE	20	SW	30	12	2	16	5	---
Bethel	21	1004.1	1005.3	27	9	18.0	-8.8	39	6	-14	4	0	30	15	81	1.01	+0.46	0.37	16	0	8.8	17	11.1	NW	40	SE	8	3	9	18	7.4	---
Cordova	40	1001.7	1003.3	41	25	33.3	-1.8	52	30	6	2	0	26	28	79	8.71	+5.11	2.14	18	0	2.9	18	6.1	ESE	---	---	---	---	---	---	---	---
Fairbanks	436	987.1	1004.3	41	15	27.9	-1.8	55	25	-15	4	0	29	16	58	1.18	-1.12	1.14	3	0	2.1	15	4.9	N	40	NNW	1	4	10	16	7.1	---
Galena	120	1001.0	1005.8	29	9	19.2	-2.1	40	8	-21	4	0	29	13	76	1.46	+2.23	2.20	7	0	3.9	38	6.9	NNE	40	ESE	9	6	18	7.4	---	
Gambell	25	1007.1	1008.3	21	10	15.2	-3.1	35	6	-5	16	0	30	11	81	1.87	-0.24	1.25	13	0	8.9	17	16.7	NNE	40	N	16	6	4	20	7.5	---
Juneau	15	1007.8	1008.7	43	32	37.5	-2.7	50	30	17	1	0	12	33	81	3.72	+6.65	1.57	23	0	4.7	6	11.7	SE	49	SE	15	0	3	27	9.1	22
Kotzebue	10	1007.8	1008.4	17	-3	7.0	-6.6	34	9	-16	1	0	30	2	73	1.42	+0.07	1.17	6	0	8.3	18	13.4	W	43	E	10	8	11	11	6.0	---
McGrath	334	991.2	1004.3	36	15	25.1	-1.4	29	25	-15	4	0	30	17	69	1.79	+0.37	1.61	8	0	5.1	33	5.2	NW	42	SW	10	6	5	19	6.9	---
Nome	13	1006.4	1007.2	23	4	13.2	-6.5	36	9	-15	2	0	30	8	76	1.82	+0.04	1.30	8	0	12.1	28	10.0	ESE	43	NW	9	4	17	6.7	75	
Northway	1713	940.7	1004.5	39	14	26.3	+1.4	50	24	-21	1	0	30	16	64	0.86	-0.30	0.04	2	0	4	24	7.7	SE	40	NNW	28	1	7	22	8.2	---
St. Paul Island	22	1005.1	1006.1	31	22	26.4	-2.6	39	30	11	2	0	26	23	78	1.59	-0.70	0.23	16	0	2.9	4	---	---	---	---	---	---	---	---	---	---
Umiat	337	1001.0	1014.8	5	-17	-5.9	-5.2	34	8	-46	15	0	30	-11	73	1.17	-0.17	0.07	6	0	1.8	13	6.1	W	---	---	---	---	---	---	---	---
Yakutat	28	1005.4	1006.4	42	26	33.9	-2.5	54	30	4	2	0	23	30	69	10.93	+3.15	1.85	18	0	18.8	35	12.3	ESE	45	ESE	20	2	7	21	8.2	---
ALASKA February 1952																																
Anchorage	134	998.3	1003.5	27	10	18.6	0	46	28	-8	17	0	29	14	78	1.50	-0.08	1.40	5	0	5.9	10	3.1	NE	20	NE	13	2	7	20	8.3	29
Annette Island	110	1006.8	1010.8	40	31	35.8	-3	45	10	19	19	0	12	31	80	7.33	+0.33	1.26	18	0	5.1	4	13.1	ESE	43	SE	24	6	21	8.4	---	
Barrow	22	1020.3	1021.0	-17	-27	-21.8	-5.2	2	1	-36	17	0	29	-36	45	0.05	-0.15	0.03	3	0	6	9	8.3	ENE	22	ENE	18	16	5	8	4	---
Bethel	21	1001.4	1002.7	14	-3	5.5	-3.6	41	27	-31	12	0	29	2	82	2.25	+1.43	1.48	17	0	19.2	29	11.4	N	45	S	27	4	5	20	7.6	---
Cordova	40	1000.7	1002.8	36	18	26.7	+1.6	43	6	-5	4	0	25	23	86	4.65	+2.26	1.94	18	0	25.3	33	4.8	ENE	---	---	---	---	---	---	---	---
Fairbanks	436	990.9	1009.1	8	-13	-2.5	+5	37	29	-31	5	0	29	-14	59	1.14	-0.37	0.08	6	0	1.8	33	2.8	N	15	N	8	5	8	16	6.8	---
Galena	120	1003.4	1008.4	4	-16	-6.1	-2.6	37	28	-40	2	0	29	-9	78	1.43	-0.23	1.13	14	0	6.8	30	5.1	N	38	E	20	2	3	24	8.2	---
Gambell	25	1007.5	1008.7	4	-5	-2	-3.6	33	29	-20	13	0	29	-7	74	1.10	+2.25	1.34	14	0	11.0	11	21.5	NNE	46	E	16	3	6	20	8.1	---
Juneau	15	1007.8	1008.6	35	26	30.6	+3.1	39	5	3	19	0	22	27	83	2.85	-1.35	1.54	20	0	12.6	12	10.3	ESE	56	SE	7	2	25	8.9	22	
Kotzebue	10	1009.5	1010.1	1	-10	-4.4	-2	29	28	-31	5	0	29	-11	74	1.28	+0.01	0.07	8	0	5.6	27	20.2	E	62	E	17	7	3	19	6.9	---
McGrath	334	993.6	1006.9	8	-10	-9.9	-1.7	38	28	-26	12	0	29	-8	70	1.45	-0.74	1.16	12	0	11.1	33	3.3	NW	38	S	28	1	4	24	8.6	---
Nome	13	1005.8	1006.6	10	-4	3.2	-2.4	34	27	-34	12	0	29	-3	74	1.25	-0.68	0.08	12	0	4.8	20	12.6	ENE	45	N	19	9	4	16	6.7	33
Northway	1713	944.5	1011.0	2	-21	-9.7	-8	28	29	-42	18	0	29	-19	63	1.20	-0.18	0.08	5	0	4.3	33	2.9	SE	43	N	14	1	10	18	7.7	---
St. Paul Island	22	998.3	999.4	29	20	24.8	+1.5	39	28	5	13	0	28	21	80	1.80	+0.29	1.40	21	0	11.1	4	---	---	---	---	---	---	---	---	---	---
Umiat	337	1007.1	1021.7	-30	-43	-36.5	-12.3	12	11	-51	21	0	29	-43	---	0.03	-0.10	0.02	2	0	4	17	6.3	W	---	---	---	---	---	---	---	---
Yakutat	28	1004.1	1005.3	35	23	29.0	+9	40	8	-4	17	0	28	28	93	9.11	+4.44	1.42														
ALASKA March 1952																																
Anchorage	134	1000.0	1005.3	32	13	22.6	-2.2	44	24	-10	29	0	31	17	75	1.65	+0.05	1.27	7	0	13.1	16	4.6	NE	40	NE	17	5	2	24	8.1	41
Annette Island	110	1004.4	1008.7	41	32	36.3	-2.9	47	25																							



## HEATING DEGREE DAYS

(Base 65°F.)

APRIL 1952

Table 3

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period July through this month	Long term mean July through this month		This month	Period July through this month	Long term mean July through this month		This month	Period July through this month	Long term mean July through this month		This month	Period July through this month	Long term mean July through this month
ALABAMA				IOWA				NEW JERSEY (Cont'd.)				TEXAS (Cont'd.)			
Birmingham	167	2485	2511	Burlington	395	6057	5649	Ironton (CO)	318	4573	4942	Brownsville	5	361	621
Mobile (CO)	62	1327	1534	Charles City (CO)	490	7401	7307	NEW MEXICO				Corpus Christi	15	642	966
Mobile	69	1428		Davenport (CO)	375	6038	6024	Albuquerque	264	4266	4331	Dallas	121	2029	2340
Montgomery (CO)	96	1791	2042	Des Moines	418	6618	6212	Clayton	433	5074	4791	Del Rio	18	1120	1497
Montgomery	116	1936	2061	Dubuque	482	7230	6665	Raton	554	6031		El Paso	94	2526	2517
ARIZONA				Keokuk (CO)	398	5522	5509	Roswell	166	3257	3526	Ft. Worth	110	2025	2336
Flagstaff	650	7007	6538	Sioux City	470	7156	6737	NEW YORK				Galveston (CO)	30	821	1169
Payson (CO)	319	4200		KANSAS				Albany	436	6434	6406	Galveston	31	848	
Phoenix (CO)	46	1540	1427	Concordia (CO)	415	5520	5246	Bear Mountain (CO)	473	6091		Houston (CO)	40	1005	
Phoenix	43	1649		Dodge City	420	5138	4926	Binghamton	525	6822	6485	Houston	50	1084	1329
Prescott	381	4663		Goodland	505	6217	5413	Buffalo	496	6133	6535	Laredo	7	572	
Tucson	69	1860		Topeka (CO)	353	5141	4976	New York (CO)	334	4495	5078	Lubbock	223	3460	
Winslow	326	4624		Topeka	367	5263		La Guardia Field	316	4402		Palestine (CO)	105	1720	2057
Yuma	2	1046	1035	Wichita	338	4742	4548	Oswego (CO)	531	6185	6696	Port Arthur (CO)	37	1010	1334
ARKANSAS				KENTUCKY				Rochester	478	6196	6403	Port Arthur	56	1190	
Ft. Smith	219	3210	3176	Lexington	323	4433	4626	Schenectady	434	6250	6521	San Angelo	88	1952	
Little Rock	198	2915	2977	Louisville (CO)	274	4109	4307	Syracuse	460	6220		San Antonio	50	1209	1441
Texarkana	155	2322		Louisville	292	4244		NORTH CAROLINA				Victoria	28	1504	
CALIFORNIA				Pikeville (CO)	233	3670		Asheville (CO)	278	3764	3942	Waco	92	1746	
Bakersfield	109	2257	2134	LOUISIANA				Asheville	321	3942		Wichita Falls	157	2683	
Beaumont (CO)	307	3125		Baton Rouge	65	1292	1505	Charlotte	178	2949	3137	UTAH			
Bishop	297	4605	4204	Lake Charles	41	1119		Greensboro	230	3575	3786	Millford	492	6522	
Blue Canyon	599	5813		New Orleans (CO)	24	926	1223	Hatteras	112	2163	2482	Salt Lake City (CO)	362	5669	5282
Burbank	164	1895		New Orleans	27	1003		Raleigh (CO)	173	2875	3238	Salt Lake City	388	6120	5761
Eureka (CO)	455	4298	4060	Int. Airport, Moisant	47	1052		Raleigh	204	3136		VERMONT			
Fresno	139	2618	2356	Shreveport	122	1938	2122	Wilmington	121	2161	2375	Burlington	567	7079	7474
Los Angeles (CO)	129	1444	1380	MAINE				Winston-Salem	214	3439		VIRGINIA			
Los Angeles	195	1648		Caribou	818	8901		NORTH DAKOTA				Cape Henry	215	2961	3414
Mt. Shasta (CO)	464	5591		Eastport (CO)	690	6913	7563	Bismarck	512	9487	8532	Lynchburg	278	3942	3916
Oakland	232	2796	2773	Greenville (CO)	761	8521	8777	Devils Lake (CO)	513	9809	9577	Norfolk (CO)	175	2851	3297
Red Bluff	136	2820	2572	Portland	629	6871	6865	Fargo	525	9645	9893	Norfolk	206	3135	
Sacramento (CO)	161	2637	2358	MARYLAND				Grand Forks	521	9665	9389	Richmond (CO)	223	3477	3797
Sacramento	177	2795		Baltimore (CO)	267	3899	4345	Pembina	471	9420		Richmond	233	3660	
Sandberg (CO)	160	4630		Baltimore	301	4322		Williston (CO)	429	9291	8612	Rosnoke	273	3932	4039
San Diego	153	1368	1519	Frederick	318	4545		OHIO				WASHINGTON			
San Francisco (CO)	282	3094	2722	MASSACHUSETTS				Akron	484	5986	5944	Ellensburg	480	6724	
San Francisco	295	3047	2979	Boston	432	5185	5625	Cincinnati (CO)	289	4219	4799	Kelso	466	4884	
San Jose	191	2389		Milton	504	5926		Cincinnati	354	4800		North Head (CO)	517	4907	4497
Santa Catalina	207	2468		Nantucket	519	5073	5374	Cleveland (CO)	464	5375	5836	Olympia	515	5155	
Santa Maria	335	2647		Pittsfield	552	6987		Cleveland	450	5604		Port Angeles	530	5287	
COLORADO				MICHIGAN				Columbus	398	5231	5282	Seattle (CO)	379	4165	4115
Alamosa	691	8182		Alpena (CO)	606	7413	7627	Dayton	409	5349	5293	Seattle	490	4922	
Colorado Springs	583	6196		Detroit	463	6028	6307	Sandusky (CO)	441	5451	5821	Spokane	455	6634	5972
Denver	496	5838	5473	Escanaba (CO)	465	7976	8102	Toledo	476	5942	6015	Stamper Pass (CO)	807	8412	
Grand Junction	459	5938	5450	Grand Rapids (CO)	468	6189	6382	Youngstown	484	6002		Tacoma (CO)	425	4574	4555
Pueblo	421	5410	5321	Grand Rapids	517	6606		OKLAHOMA				Tatoosh Island (CO)	565	5318	5110
CONNECTICUT				Lansing	531	6699	6767	Oklahoma City (CO)	253	3508	3604	Walla Walla (CO)	274	4785	4687
Bridgeport	398	5046		Marquette (CO)	612	7986	8029	Oklahoma City	260	3576		Yakima	404	6075	5388
Hartford	412	5496	5833	Muskegon	551	6674		Tulsa	269	3684		WEST VIRGINIA			
New Haven	432	5216	5602	Sault Ste. Marie	679	8581	8580	OREGON				Charleston	304	4909	
DELAWARE				Ypsilanti	461	6141		Baker (CO)	502	6913	6562	Elkins	461	5407	5501
Wilmington	309	4513		MINNESOTA				Baker	534	7443		Huntington (CO)	230	3749	
DIST. OF COLUMBIA				Duluth (CO)	605	9209	8922	Burns (CO)	495	7072		Parkersburg (CO)	319	4440	4779
Washington (CO)	258	3897	4401	Duluth	617	9431		Eugene	414	4361		Petersburg	357	4663	
Washington	259	3884		International Falls	606	10051		Meacham	633	7238	4354	WISCONSIN			
FLORIDA				Minneapolis	475	7943	7643	Medford	318	4588		Green Bay	537	7898	7513
Apalachicola	55	1078	1212	Rochester	549	8035		Pendleton	335	5181		La Crosse (CO)	453	7209	7137
Daytona Beach	58	678		St. Cloud	559	8901	8419	Portland (CO)	314	4079	4015	La Crosse	474	7471	
Fort Myers	11	272	277	St. Paul	456	7798	7648	Portland	371	4445		Madison (CO)	459	7053	7073
Jacksonville (CO)	41	926	1130	MISSISSIPPI				Roseburg (CO)	330	3848	3960	Madison	476	7231	
Jacksonville	55	1077		Jackson	132	1945	2155	Salem	431	4549		Milwaukee (CO)	500	6646	6697
Key West (CO)	0	17	46	Meridian	130	2029	2200	Sexton Summit (CO)	537	5858		Milwaukee	512	6877	
Key West	0	31		Vicksburg (CO)	106	1777	2045	Troutdale	387	4545		WYOMING			
Meibourne	27	374		MISSOURI				PENNSYLVANIA				Casper	530	7316	
Miami (CO)	13	145	182	Columbia	343	5000	4902	Allentown	398	4524		Cheyenne	660	7243	6936
Int. Airport, Hialeah	3	107		Kansas City	334	4966	4869	Erie (CO)	465	5509	5971	Lander	534	7662	7686
Miami Beach	0	57		St. Joseph	370	5516	5192	Harrisburg	339	4960	5236	Rock Springs (CO)	619	7862	
Orlando	31	545		St. Louis (CO)	318	4483	4478	Park Place (CO)	511	6415		Rock Springs	656	8304	
Pensacola (CO)	58	1210	1420	St. Louis	321	4679		Philadelphia (CO)	291	4168	4607	Sheridan	478	7673	
Tallahassee	65	1135		Springfield	343	4616	4449	Philadelphia	293	4339		ALASKA			
Tampa	23	434	550	MONTANA				Pittsburgh (CO)	337	4689	5150	February 1952			
West Palm Beach	8	156		Billings	412	7207		Pittsburgh	396	5102	5459	Anchorage	1340	8182	
GEORGIA				Bullhead	734	9597		Reading (CO)	313	4605	5046	Annette Island	839	5007	
Albany	87	1482	1647	Glasgow (CO)	434	9234		Scranton (CO)	399	5601	5923	Barrow	2524	12452	13241
Atlanta (CO)	153	2685	2933	Great Falls	425	7775		Williamsport	401	5691	5833	Bethel	1726	9021	8947
Atlanta	143	2649		Havre (CO)	413	8718	7969	RHODE ISLAND				Cordova	1107	7081	
Athens	161	2749		Helena	525	8394	7325	Block Island	505	4878	5398	Fairbanks	1960	10650	10700
Augusta	135	2194	2262	Kalispell	546	7927	7399	Providence (CO)	416	5029	5624	Galena	2062	11168	
Columbus	133	2079		Miles City	392	8565	7090	Providence	450	5303		Gambell	1891	9301	
Macon	104	1885	2303	Missou											



# SEVERE STORMS

Table 4

APRIL 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Pennsylvania, south-central counties	1-2					6	See remarks		Rain and fog	5 persons injured in auto accidents on rain-swept highways; 1 person injured when rain and fog caused small airplane to attempt a forced landing on Pennsylvania Turnpike. Plane demolished when it crashed into tractor-trailer near Somerset.
Haswell, Colo.	3	10 a.m. - 8 p.m.	*35	36				\$300,000	Wind and sand	Sand-laden winds, reaching gale speeds at times, prevailed. Damages limited to winter grains and soil erosion.
Ringgold, Montague County, Tex.	3	3:30 p.m.	*10	30			\$5,000		Wind and hail	Barns unroofed; houses damaged; automobile glasses broken. Wind damage, \$1,000; hail damage, \$4,000.
Nocona, Montague County, Tex.	3	4:45 p.m.	*10				\$500,000		do	Automobile and glass damage heavy. Principally hail damage.
Pottsboro, Grayson County, Tex.	3	6 p.m.	200	6	0	1	9,500	500	Tornado and hail	Accompanied by light hail. Seven residences damaged.
Harris, Claiborne Parish, La.	3	11 p.m.	100	2	0	0	10,000	0	Tornado	Moved northeastward. Homes unroofed or twisted off foundations.
Jefferson Davis and Acadia Parishes, La.	4	2-3 a.m.	100	40	0	10	500,000	0	do	Moved northeastward from Ardoin's Cove to Roanoke to Church Point. In Ardoin's Cove only 2 out of 20 homes left standing; damage less at other places.
St. Landry and St. Martin Parishes, La.	4	3 a.m.	70	23	4	33	62,000	50,000	do	Moved northeastward from Bristol through Arnaudville to Bayou Portage; was hit and skip type.
Jeanerette, St. Mary Parish, La.	4	3:30 a.m.	20	3	0	3	500,000	10,000	do	Crossed U. S. 90 $\frac{1}{2}$ mile east of Jeanerette and moved northeastward to Charetton. Damaged Delgado sugar mill owned by city of New Orleans. Roof on south end of mill blown to east while smoke-stacks on north end blown down to west.
St. John and St. Charles Parishes, La.	4	4:30 a.m.			1	5	30,000	10,000	Line squall	Affected area near Mississippi River, especially around Norco refinery.
Jefferson, Orleans and St. Bernard Parishes, La.	4	4:40-5:10 a.m.	900	35	2	27	2,500,000	Minor	do	No evidence of tornado. All evidence pointed to a line squall with very low roll cloud. Fall of pressure gradual until squall struck, then rose instantaneously 0.14 inch. Anemometer atop Huey P. Long Bridge, 269 feet above ground and 0.2 mile from area of damage, recorded winds of 90 m.p.h. (no direction indicator). Wind 14 m.p.h. when squall struck at 4:41 a.m., rising rapidly to 75 m.p.h. at 4:45 a.m., then sharp lull to 37 m.p.h., then rapid rise to 90 m.p.h. at 4:48 a.m. At 4:51 a.m. was down to 18 m.p.h. Area showing greatest damage, although not a path in the sense that a tornado cuts a path, extended from Harahan to Bridge City, Westwego, uptown New Orleans, Gretna, Algiers, Violet to vicinity of Shell Beach. 6 homes destroyed in Harahan and Bridge City and 2 in St. Bernard; 40 homes damaged in Jefferson and 14 in St. Bernard. In New Orleans 750 homes and buildings damaged, with 200 heavily damaged. Damage suffered in New Orleans confined primarily to area from Audubon Park to Louisiana Ave., and from St. Charles Ave. to river. Barge torn loose and blown across river from New Orleans to Harvey. Thousands of trees in New Orleans denuded or had their tops twisted off. 1/2 mile of steel plates and guide rails on Huey P. Long Bridge torn loose and blown to ground. These plates were fastened to cross-ties and were horizontal, indicating from estimated wind force needed to dislocate them, an upward thrust of 67 to 74 m.p.h. This indicates a roll cloud at 100 to 200 feet. Radio tower smashed to ground from point about 50 feet high. Smokestack blown down in Westwego. Terminal wharf in Westwego severely damaged and stored automobiles were smashed by dislodged sprinkler system at an estimated loss of 1/2 million dollars. High winds felt over large area, but damage minor.
Panama City Beach, Fla.	4	10:20 a.m.	20	Short	0	1	6,000	0	Tornado	Waterspout, traveling northeastward, moved onto beach from Gulf of Mexico, damaged 23 beach homes, and then lifted or dissipated short distance from the shore.

See footnotes at end of table.



## SEVERE STORMS

APRIL 1952

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Mobile County, Ala.	4	P.m.	200	1½	0	2	\$80,000		Tornado	Struck 1 mile southwest of Airport Station. First struck Bakers School; peak gusts 85 m.p.h. before power failure.
Green Level community, Wake County, N. C.	5	1:45 a.m.	300	6	0	0	15,000		do	Damaged 7 dwellings, and destroyed several smaller farm buildings; uprooted trees.
Augusta County (northern portion), Va.	5	10:15 a.m.	150	1	0	2	7,000	\$ 0	do	3 barns destroyed and 1 brooder house severely damaged in a small area near Harriston. Father and son seriously injured during destruction of one of barns.
Rockingham County, Va.	5	11 a.m.	Variable	5	0	0	60,000	0	do	Damage in sparsely settled area from McGaheysville to Shenandoah River near Elkton confined mainly to turkey farms. Roofs of 2 large brooder houses sheared off. Many thousands of white turkeys killed; several buildings and barns destroyed, and outbuildings whirled away from foundations; many trees uprooted.
Waynesboro- Chambers- burg area, Pa.	5	12:30-1 p.m.					See remarks		Wind	Near Waynesboro a 2-story concrete-block chicken house had most of top floor torn away by 60 m.p.h. winds, with loss of 100 chickens; total damage, \$2,500. A concrete-block implement building crumbled and roof tossed 60 feet with loss of \$2,000. 3 other buildings unroofed, aerials and windows damaged, and some utility lines broken by falling trees. In Chambersburg tree fell across moving car with damage to car, \$300.
Gettysburg area, Pa.	5	12:45- 1:15 p.m.				1	See remarks		do	Peak winds occurred about 1 p.m. Church unroofed and part of brick wall blown down. Pump house blown onto highway, 2 barns unroofed, and several hatchery buildings damaged or wrecked with a loss of 4,000 chicks.
York area, Pa.	5	1-1:30 p.m.			0	4	1,500,000		Wind and tornado	Peak winds and tornado occurred about 1:15 p.m. Spotty wind damage in Hanover-Spring Grove section of York County, becoming heavier and more general to maximum in city of York. Factory lost 3/4 of roof and part of brick wall with damage estimated at \$80,000. Another factory roof carried for 2 blocks, damaging utility lines and other property enroute. Brick chimney, 35 feet high, crashed through 3 floors of another building. Warehouse roof slid into street. Crane weighing several tons was moved 40 feet across plant yard. An 80 x 20-foot greenhouse frame twisted and 1,000 panes of glass broken. Wind rolled up linoleum runner in hallway and blew a 13-year old girl, who was standing in hallway, off her feet. Scores of show windows broken, with lesser wind damage to many homes, trees, and utility lines. Hit-skip tornado action reported in this area. Civil Defense units called out to patrol damage areas. In surrounding country a score or more barns, garages, and houses had portions or all of their roofs blown off. Some barns had rafters twisted out of shape; several buildings completely demolished. At Wrightsville show windows broken, a corner ripped from boathouse, and chimney smashed through roof of church.
Harrisburg area, Pa.	5	1:15-1:45 p.m.			0	4	See remarks		do	High winds lifted roof in Steelton and dropped it onto bus, street clock, and store windows. Coal shed roof, carried by wind, severed power lines to 3 suburbs. Many other roofs damaged as were trees and aerials. Hit-skip effect of tornado again felt in nearby Lawnton where man repairing a roof was carried 100 feet into air, spun around, bumped out of vortex by roof he had been on, then dropped across light wires and into fallen tree before hitting ground, yet lived through the experience. Gusts to 62 m.p.h. reported at Harrisburg State Airport.
Lancaster area, Pa.	5	1:45-2:15 p.m.			0	6	75,000		do	Several reports described storm in this section as "young tornado", "baby twister". Man picked up with yard equipment and carried 65 feet through air. In 10-minute storm period 6 persons injured and property damaged to an estimated \$75,000. 60 m.p.h. winds crumpled and twisted a 420-foot radio tower, unroofed a house, blew out a brick garage wall, felled trees, utility lines, and caused lesser damage to barns and portions of other buildings. Two-thousand users of electricity without power for periods up to 4 hours.

See footnotes at end of table.



# SEVERE STORMS

Table 4—Continued

APRIL 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Suedberg, Pa.	5	2:15-2:45 p.m.					\$25,000		Wind	At local airport, main hangar collapsed, demolishing 3 planes inside it, while another plane damaged. Barn nearby unroofed, 2 others damaged, and trees felled across railroad tracks.
Lock Haven-Shamokin area, Pa.	5	Afternoon					See remarks		Wind and hail	High winds caused spotty property damage through this area, mainly near Shamokin, Milton, and Loganton. At Loganton, hailstones 1-3/4 inches in diameter, broke windows and tore roofs, while accompanying wind and rain did further damage inside.
Washington, D. C. and vicinity	5	Afternoon			0	1			Wind	Heavy damage due to wind blowing down trees, poles, and wires. One person injured by flying glass when wind broke plate-glass window.
Stroudsburg area, Pa.	5	4:15-4:45 p.m.			0	0	See remarks		Wind, tornado, and rain	Tornado picked up roof from house, pulled curtains and shades up and over top of walls, lifted garage several feet off foundation. It skirted Paradise Brook Trout Company pond containing 30,000 trout, circled, and scooped most of water from the 3-foot deep, 40 x 25 feet reservoir and dropped it in a sheet on nearby field. It also carried iron sheeting from barn roof several hundred feet. Heavy rains sent local creeks up sharply, undermined 200 feet of retaining wall, and flooded basements of power plant and paper mill.
Clark Town- ship, Union County, N. J.	5	5:10 p.m.	35	**200	0	0	5,000	\$ 0	Tornado	Tornado confined to small area. Several homes under construction severely damaged. 3 toolsheds demolished.
New Jersey, entire State	5	P.m.					15,000		Rain, wind and hail	Sporadic statewide damage. Wind shattered plate glass windows and advertising signs. Tree limbs broken. Power and communications lines severed.
Middletown to Westmin- ster, Md.	5	P.m.	*20- 30	40	0	2	1,000,000	0	Tornado and wind	Tornado likely occurred near Thurmont, and another in Middletown Valley. Barns and houses damaged; sheds and barns blown from foundations and completely or partially demolished. Trees broken down. Pilot injured at Westminster Airport by wind, 5 planes smashed, and utility poles downed. Farmer sucked from doorway and carried 30 feet. Partially completed house blown from foundation at Sharpsburg. Phone service curtailed.
Hagerstown to Balti- more, Md.	5	P.m.	*40	60			25,000		Wind, hail, and thunder- storms	2 inches of hail at Hagerstown. Trees uprooted at Frederick. Tree limbs broken at Baltimore. Power lines downed and cut at Baltimore. At Rosedale, east of Baltimore, a roof lifted from garage and carried across highway. Minor damage throughout rest of area.
Germantown, Md.	5	P.m.					See remarks		Wind	Shingles blown off houses, trees uprooted, windows smashed, and small buildings upset.
Marydel, Md.	5	P.m.			0	0	See remarks	0	Possible tornado and wind	Cloud in shape of funnel dipped into pond and carried water aloft. Farm buildings damaged.
Ford County northeast- ward through Russell County, Kans.	8	1:30-9 p.m.			0	0	2,500	800	Hail, wind, and tor- nado	Stormy conditions reached severe proportions in at least 3 periods: (1) 1:30 to 2 p.m.—One or more small tornadoes identified by characteristic roar demolished 1 garage, blew roof off another garage, moved barn on foundation, and destroyed brooder house in Edwards County. (2) 4 to 5:15 p.m.—Wind and hail in Edwards and Barton Counties damaged small buildings and telephone and power lines. (3) 8 to 9 p.m.—Hail in Ford, Barton, and Russell Counties knocked down wheat and damaged property in Russell. Property damage: By wind, \$500; hail, \$1,500; tornado, \$500. Crop damage: By hail, \$800.
Sayre (3 miles south- west of), Beckham County to near Leed- ey, Dewey County, Okla.	8	4:45-6 p.m.	100	#45	0	0	200	0	Tornado	#Path not continuous. Lengths in places where funnel touched ground about 1/2 mile each, 3 small sheds damaged. Several persons reported seeing funnel cloud.
Ottawa Coun- ty, Kans.	8						850		Electri- cal	Lightning strikes on 2 farms in northern Ottawa County caused loss of 800 bales of hay valued at \$600 and cow worth \$250.
Alva (near), Woods Coun- ty, Okla.	8	10:37-11 p.m.	0		0	0	0	0	Tornado	No tornado reported striking ground, although several funnels reported southwest and west of Alva.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

APRIL 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Caruthers— Monmouth district, Calif.	9							See remarks	Hail	Severe hailstorm stripped grape vines of shoots, knocked small fruit from trees, and leveled fields of alfalfa. Preliminary estimates of losses ranged as high as 50 to 100 percent in some vineyards. Although vines not destroyed, raisin crop expected to be drastically reduced in this district.
Altus and area south, Jackson County, Okla.	10	1:15 a.m.					\$725		Wind	High winds from north struck labor camp south of Altus, and damaged several buildings in southern part of city. Several plate-glass windows blown out.
Litchfield Park (near), Ariz.	11	7:30-7:50 p.m.	*3	8				\$402,000	Hail	Began about 4 miles north of Luke Air Force Base and extended northward; hail averaged from 1/8 to 1/2 inch in diameter. About 560 acres of lettuce, which was ready to harvest, was destroyed. About 1,550 acres of cotton destroyed, also.
Houston, Tex.	12	5:30 a.m.	50				3,000		Wind	Unroofed corrugated warehouse about 3 miles north of business center.
Tallulah, La.	12	12:15 p.m.					5,000		Thunder- squall	Wind from south damaged several buildings and toppled screen of new drive-in theatre.
Pike County, Ala.	12-13	P.m.					2,500		Wind	1 home destroyed, 7 damaged, and 1 building damaged.
Wisconsin, southeast- ern two- thirds of State	12-13						100,000		Snow, rain, glaze, and wind	Heavy snow fell in western part of State and wet snow, rain, and sleet in eastern sections. Freezing rain in parts of east. Northeasterly gales prevailed. Wisconsin Telephone Company reported more than 200 poles down, due to wet snow, glaze and high wind. Power lines in eastern portion suffered similar damage. Northeasterly gales caused erosion damage along shore of Lake Michigan. Damage from high waves and water reported at Milwaukee, Manitowoc, and Green Bay. A residential area in City of Green Bay flooded by wind-driven water from Bay.
Columbus, Franklin County, Ohio	13	12:15 p.m.	50	2			300,000		Wind and rain	Storm unroofed several buildings on south and south-east side of city.
Morgan, Mus- kingum, and Perry Coun- ties, Ohio	13	1 p.m.	1,760				See remarks		do	Storm damaged church, unroofed buildings, blew trees over on homes, and leveled small buildings. Damage estimated as several thousand dollars.
Dover, Tus- carawas County, Ohio	13	2:10 p.m.	*25	**340	0	4	300,000		Tornado	Winds 82 m.p.h. close to area of destruction. Disassembled most of Dover Appliance Plant and the Twin Cities Concrete Plant. Tree fell on car, injuring 4 persons. Gas station employee reported "two big black clouds crashed into each other and it was all over in a few seconds".
Madison County, Ky.	13	2:30-3 p.m.				2	1,500	1,000	Hail	Hailstones, some reported as big as golf balls, fell. Hardest hit was community of Dreyfus. Roofs and windows of homes, and car tops damaged. Crops ruined, and poultry killed.
Buncombe, Graham, Caldwell, Macon, Sur- ry and Wilkes Coun- ties, N. C.	13	3-9 p.m.					110,000		do	Numerous hailstorms scattered through mountains during the afternoon and early evening. Damage mostly in Surry County, where hailstones size of hens' eggs reported. No crop damage because crops not yet up in those areas. Most of the damage to telephone and power lines, roofs, and windows.
Fredericks- ville, Pa.	13	8:30 p.m.					3,000		Thunder- storm	Farmhouse near Old Zionsville was struck by bolt of lightning which started 3 separate fires, bored 2 big holes (4 feet square) in roof, wrecked electrical appliances, and burned out wiring system.
Union, S. C.	14	12:30 a.m.					175,000		Electri- cal	Fire from lightning destroyed First Baptist Church and damaged surrounding buildings.
New Jersey, northern half of State	14	P.m.					1,000		Rain, wind, and hail	Light damage to power and communications lines by wind.
Pawnee Coun- ty, Kans.	16						1,500		Electri- cal	7 head of cattle killed by lightning south of Larned.
Athens, Hen- derson County, Tex.	18	2:15 p.m.	200		0	0	2,000		Tornado	Tore top story from 2-story farmhouse; moved 2 houses off foundations; unroofed 4 houses; blew down wind-mill.

See footnotes at end of table.



# SEVERE STORMS

Table 4-Continued

APRIL 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Tucson, Ariz.	18	6:45 p.m.	*10				\$500		Wind	High winds (gusts exceeding 60 m.p.h. at Tucson WBAS) broke tree limbs, blew down signs, and damaged roofs, power lines, and television antennae.
Wallace County, Kans.	19	Afternoon	*3 or more				500		Hail	Heavy hail occasionally as large as golf balls fell in a north-south strip across Wallace County west of Sharon Springs. Windows broken in several houses; wheat knocked down, but expected to recover.
Blanchard (4 miles south of), McClain County, Okla.	19	5-6:30 p.m.	*5	8			50,000		Rain	Estimated 6 inches of rain in 1 hour, overflowing the small Winter and Laflin Creeks. Property damage to bridges.
Maine, central and southern counties	20	All day					30,000		Wind-created fires	Dozens of wild-land fires: 100 to 1,500 acres. In Brunswick and Hampden 7 homes destroyed.
Massachusetts, entire State	20	All day				5	500,000		do	A half-million dollar mansion in Tyringham greatest monetary loss; no estimate of woodland damages; dozens of outbreaks of fires consuming 40 to 300 acres, endangering many homes; several persons suffered burns or smoke inhalation.
Rhode Island	20	All day					8,000		do	State fire officials called this epidemic of woodland blazes the worst in their memory. The worst, burning 1,000 acres over the northwest corner of State, extending into Massachusetts. Another, in North Providence, burned 3 square miles of brushland, destroying 3 hunting lodges.
Rooks County, Kans.	20	1 a.m.					500		Wind	Strong wind in Rooks County blew over shed south of Stockton, killing 1 of 3 heifers pinned underneath.
Harmon, Beckham, Roger Mills, and Dewey Counties, Okla.	20	3:30-7:15 p.m.	4 to 20	99	0	0	16,000	\$ 0	Tornado	Funnel cloud or clouds observed. Considered to be a single tornado that came to ground at times, while traveling northeastward at a rate of 26 m.p.h. for distance of 99 miles; however, the funnel or funnels may have formed, dissipated, and reformed a number of times. First struck farm property 2 miles south of Vinson at 3:30 p.m., causing about \$200 damage. This was first tornado of record for Harmon County, Oklahoma. Tornado then appeared to have lifted, coming to ground again about 4 miles east of Erick at about 4:30 p.m. where several farmsteads damaged; accompanied by hail and heavy rain in Erick area, especially to east of tornado path. Next time tornado struck ground was at 5 p.m. in Sayre area where property damage to 2 farmsteads amounted to \$15,000. Near Sayre 4 funnel clouds observed, each spaced about 1/16 mile apart; one of which struck farm places near Sayre. Tornado again observed at 6:30 p.m. about 10 miles northwest of Leedey, and at about 7:15 p.m. near Vici. No damage observed near Leedey and Vici as it moved over open country.
Duke (east of), Jackson County, Okla.	20	4-4:30 p.m.	440	1 1/2	0	0	100	0	do	3 funnels in one cloud touched ground in pasture. Moved northeastward. Cowshed and fence damaged.
Tucson, Ariz.	20	7 p.m.	*20				3,000	5,000	Rain and hail	Almost 2 inches of rain recorded, mostly during heavy thunderstorm which was accompanied by hail ranging in size from 1/16 to 1 inch in diameter. Flash floods damaged some lowland homes, and brought debris and mud into metropolitan area. Rain caused about \$7,600 damage; hail about \$400.
McGregor (4 miles northwest of), McLennan County, Tex.	21	12:15 p.m.	200		0	0	32,000		Tornado	2 automobiles badly damaged; several farm buildings destroyed.
Altus (3 miles northwest of), Jackson County, Okla.	21	3:25 p.m.			0	0	0	0	do	In single storm 2 funnels appeared about 1/2 mile apart. They appeared to dip down some 200 to 300 feet then go back up. They did not reach ground. Woman killed in auto accident, as a result of fright about tornado and water running across highway.
Blackwell (2 miles west and 5 miles north of), Kay County, Okla.	21	4:05-4:12 p.m.	50	1/4	0	0	0	0	do	Moved northwestward. Radar reports of direction of movement of thunderstorms nearby confirm this unusual direction. No damage as it moved across open field.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

APRIL 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Enid (east and north- east of), Garfield County, Okla.	21	4:56 p.m.			0	0	\$ 0	\$ 0	Tornado	Funnel cloud observed by several persons, did not touch ground. Accompanied by heavy rain (1.02 inches in 20 minutes in Enid).
Riley Coun- ty, Kans.	22	5:30 p.m.			0	0	0	0	do	Several persons sighted funnel cloud 10 miles west of Manhattan which appeared to drop to ground twice in open country.
Magnolia (1½ miles north of), Ark.	22	6:45 p.m.	150	**500	0	0	55	0	do	Small tornado; damage limited. Shingles torn from roofs of 2 buildings and utility pole destroyed.
Batesville (8 miles north of), Indepen- dence Coun- ty, Ark.	22	7:15 p.m.	100	**100	0	0	1,050	0	do	Small tornado struck ground near Pleasant Valley Cemetery, moving northeastward. A large tree blown onto flat bed truck which was almost total loss. A house and barn damaged, and several outbuildings damaged or destroyed.
Leesville and DeRid- der, Vernon and Beaufort Parishes, La.	22-23	9 p.m.- 7 a.m.	*50	100	0	0	250,000	250,000	Rain	Torrential downpour washed out bridges and trestles (causing train wreck), flooded out crops, and damaged highways.
Kentwood (2 miles south of), La.	23	9:15 a.m.			0	0	3,000	0	Tornado	Passed over thinly settled area; damaged homes and barns.
Washington, D. C. and vicinity	23-29								Rain	Rain nearly continuous for over 5 days and nights. Some flooding of low-lying areas with damage to homes and roadways.
Inman area, Spartanburg County, S.C.	24	6 p.m.	*3	10				1,000,000	Hail and wind	Hail responsible for practically all damage. About 1,200 carloads of peaches destroyed; also, some damage to wheat and cotton.
New Jersey, entire State	24th to 29th	P.m. 24th to a.m. 29th					2,500		Rain	3- to 6-inch 4-day rain caused flooding of cellars in urban areas.
Dallas Coun- ty, Ala.	25	P.m.					200		Hail	Hail peppered southern and central portions and punched holes in Delta Air Lines plane flying over Selma, forcing it down for repairs.
Santa Rosa County, Fla.	25							Small	do	Hail fell in several sections of County. Destroyed some cotton in one locality.
Maryland, central and eastern portions	27	A.m. and p.m.					See remarks		Floods	6-day rain period caused flooding of rivers and small streams; also flooded basements, causing some families to flee homes. Roads flooded and closed within State; some roads caved in.
Lamesa, Daw- son County, Tex.	28	5:15 p.m.	*2				1,000		Hail	Damage mostly to buildings; broken glass.
Meade Coun- ty, Kans.	29	1:30 p.m.			0	0	0	0	Tornado	Funnel cloud sighted in southeastern Meade County; dipped to ground several times in open country as it moved north-northeastward.
Beaver City (northeast of), Nebr.	29	4 p.m.	Near- row	**440	0	0	Light	0	do	A few farm sheds twisted and roofs damaged.
Fort Cobb (south of), Washita County, Okla.	30	Afternoon	880	4 to 5				4,000	Hail	Damage to wheat crop.
Lookout (vi- cinity of), Woods Coun- ty, Okla.	30	Afternoon						2,000	do	Damage to wheat in small area.
Lawton, Com- anche County, Okla.	30	2:30-2:50 p.m.	*2	2			1,500,000		do	Heavy hail, size of golf balls to hens' eggs caused extensive damage to automobiles, buildings, and signs in Lawton. Hail also reported in southwestern Comanche County in and near Faxon and Chattanooga, with minor damage.
Freedom (vi- cinity of), Woods Coun- ty, Okla.	30	3:45-4:15 p.m.	200	12	0	0	6,000	0	Tornado	Damage to buildings on 3 farms as storm moved eastward. Dipped to ground 7 times.

See footnotes at end of table.



# SEVERE STORMS

Table 4-Continued

APRIL 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Hitchcock and Loyal (vicinity of), Blaine and King- fisher Coun- ties, Okla.	30	4-6 p.m.	*4	12				\$204,800	Hail	Area 4½ miles east of Hitchcock to 9 miles east and 4 north of Hitchcock. Wheat, alfalfa, and oats from 40 to 100 percent damaged.
Ford to Stafford Counties, Kans.	30	4:20-7:14 p.m.			0	0	\$ 0	0	Tornadoes	Tornado sighted 11 miles east of Dodge City at 4:20 p.m. moving northeastward and again 7 miles north-east of St. John in Stafford County at 7:14 p.m. 3 other funnel clouds sighted in vicinity of St. John about same time. Tornado reported to have touched ground and sucked water from pond in Ford County.
Thomas, and vicinity, Union Coun- ty, N. Mex.	30	5:30 p.m.					°500		Wind and hail	Roof blown off house. Some winter wheat damaged.
San Angelo, Tom Green County, Tex.	30	6:30 p.m.	100	880	0	6	275,000		Tornado and rain	Warehouses unroofed, walls collapsed, and plate-glass windows broken. Considerable merchandise ruined by rain after warehouses unroofed.
Ryan (near), Jefferson County, Okla.	30	6:30-8 p.m.	1,760	1-1¼			20,000	2,500	Hail and rain	Heavy hail accompanied by 4½- to 5-inch rain. Most of damage to roofs.
Antelope, Jack Coun- ty, Tex.	30	8 p.m.	*2				See remarks	See remarks	Wind and hail	Crops beat to ground; heavy hail; some damage to roofing.
Norton Coun- ty, Kans.	30	8:30 p.m.							Hail	Scattered parts of Norton County received heavy hail which damaged wheat, oats, alfalfa, and gardens to some extent.
Ford County, Kans.	30	8:50 p.m.			0	0	0	0	Tornado	Tornado which did not reach ground reported by 5 persons 8 to 10 miles southwest of Dodge City, moving east-northeastward.
Brown Coun- ty, Kans.	30	9:30 p.m.	1,760	4			300	1,600	Hail	Wheat and clover flattened, fruit and berry blossoms destroyed, and 25 pigs killed by hail which accumulated up to 4 inches near Reserve.
Cushing and vicinity, Payne Coun- ty, Okla.	30	Night					5,000	1,000	do	
Cumberland County, Pa.	30								Rain	5-day rains saturated hillsides; landslide along Conodoguinet Creek near Heck's Dam which blocked road-way for several hours. Mechanicsburg sewage disposal plant grounds flooded due to high ground-water level.

\* Miles instead of yards.

\*\* Yards instead of miles.

° Crop damage included with other property damage.



## SEVERE STORMS

Table 4--Continued

APRIL 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
LATE STORM REPORTS FOR MARCH 1952										
Los Angeles, metropoli- tan area, Calif.	6-7						\$20,000		Rain and wind	Heavy rains on 6th in Los Angeles area with totals in excess of 3 inches in 18 hours produced heavy runoff from hard-surfaced areas. Damages resulting from heavy rains and strong winds reported as follows: Automobiles, \$3,000; streets, \$15,000; trees, \$2,000.
Los Angeles, metropoli- tan area, Calif.	14-16						50,000		do	Heavy rains and strong winds in Los Angeles area from 14th to 16th resulted in flooding, erosion, silting, mud slides, and damage to trees and power poles. Losses reported as follows: Buildings, \$20,000; automobiles, \$5,000; streets, \$25,000.
Lower Sacra- mento and San Joaquin Valleys, Calif.	15	6 a.m.					See remarks		Wind	In Marysville district high, strong winds blew a few weak limbs from shade trees; a few orchard trees tipped over where soils were wet; some damage sus- tained to composition roofings. In Colusa district strong winds blew over prune and almond trees, with losses estimated at \$10,000. Strong winds in Yuba City district downed many trees, mostly almonds, with losses estimated at \$5,000; doors, windows, power poles, etc. sustained damages estimated at \$5,000. In Auburn district some fruit trees uprooted and some blossoms blown from plum trees. Strong winds in Woodland district uprooted trees and destroyed sev- eral barns. Winds in Sacramento district damaged automobiles, residences, and other property to ex- tent of \$20,000; muslin covering of tomato beds, growing tomatoes, and peas in fields sustained loss- es estimated at \$10,000. In Fairfield district a few ornamental fruit, and nut trees blown down; some buildings damaged. In Lodi major damage suffered, \$4,000 loss of mill and storage bin roof sections at General Mills plant. In Lodi section 15-acre almond orchard sustained loss of about 60 percent of trees. In Modesto section lashing winds pushed down almost entire orchards; Modesto Airport recorded a loss of \$6,000 when 4 light planes overturned. In Stockton and other parts of San Joaquin County strong winds resulted in damages estimated at \$1,000,000. Storm described as worst since 1938 in this section. Pa- cific Gas and Electric Company reported 3 cases of major transmission trouble and at least 30 main cir- cuit lines down. Pacific Telephone and Telegraph Company reported at least 150 of its lines severed by falling limbs, trees, power poles, etc. Many roofs blown off, windows smashed, television anten- nae wrecked, signs buckled, etc. In Sonora district, strong winds downed a few trees.



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

APRIL 1952

Major flooding from snow melt occurred in the Missouri, Upper Mississippi and Red of the North River Basins during April. The previous maximum stages of record in the Missouri were exceeded in the reach (nearly 1,100 miles) from Elbowoods, N. Dak., to Fort Leavenworth, Kans., except at Bismarck, N. Dak., and Yankton, S. Dak. In the Upper Mississippi Basin the flooding along the main stem was record breaking between St. Paul and Winona, Minn. In the Red River of the North the flooding was severe in the headwaters.

**HUDSON BAY DRAINAGE.**—Severe flooding occurred in the headwaters of the Red River of the North at Wahpeton, N. Dak., and at Moorhead, Minn., between the 8th and 28th of the month. The crest stage of 15 feet at Wahpeton on the 12th was the highest stage at that point since 1897 when a stage of 19 feet was established from high water marks. During the severe flood of 1950 (see Monthly Weather Review, Volume 79, Number 9) a stage of 11.9 feet was observed. At Moorhead, Minn., the crest of 34.65 feet on the 16th was also the highest stage at that point since 1897 (high water mark). During the 1950 flood, a stage of 27.2 feet was reached at that point. Downstream at Grand Forks, N. Dak., the crest of 33.8 feet was 12 feet lower than in the severe flood of 1950. The crest continued to flatten out as it moved downstream to the Canadian border with the result that the flooding downstream was com-

paratively minor. The Sheyenne River overflowed slightly earlier than the Red due to snow melt in the reach from about 8 miles above Lisbon, N. Dak., to Horace, N. Dak.

The severe flooding in the headwaters of the Red River of the North was due to the heavy snow accumulation during the winter in the area south of Fargo, N. Dak. Other contributing factors were the unusually cold weather in December which resulted in a rather deep frost in the spring and the late runoff with consequent sudden change to warm temperatures. A snow survey during February showed 4 to 5 inches of moisture available for runoff over Richland and Sargent Counties in extreme southeastern North Dakota, and 3 to 4 inches over Grant and Wilkin Counties, immediately to the east in Minnesota. A slow thaw during the last half of March and early April filled drainage ditches but general flow into the Red River was held up by ice in the ditches. Maximum temperatures rose into the 40's and 50's during the second week in April. The fields and ditches then drained into the Red River rapidly. Over the northern part of the valley, snow had been extremely light with snow depths of less than 2 inches.

Damages due to the flood are estimated at more than \$2,000,000. Nearly 1 million dollars damages occurred in the Fargo-Moorhead area.

Comparative flood stages are given in the table below:

RED RIVER OF THE NORTH — COMPARATIVE CRESTS

River and Station	Flood Stage	1952 Crest		1950 Crest	Previous Maximum Crest of Record	
		Stage	Date		Stage	Date
Wahpeton, N. Dak.	10	15.0	4-12	11.9	19.0	April 1897
Moorhead, Minn.	17	34.7	4-16	27.2	40.1	April 1897
Grand Forks, N. Dak.	30	33.8	4-21	45.8	50.2	April 1897

**ST. LAWRENCE DRAINAGE.**—Minor flooding occurred on the Grand, Red Cedar and Shiiwassee Rivers in the Lake Michigan drainage between the 14th and the 16th due to moderate to heavy rains (1 to 2 inches) on the 13th and 14th. Only light scattered damage was reported.

Some minor flooding occurred in the headwaters of the Maumee Basin in the Lake Erie drainage on the St. Marys and St. Joseph Rivers during the month of April. Only lowlands were affected and some secondary roads in Adams County, Ind., and in Mercer and Van Wert Counties, Ohio. The total damage was slight.

**ATLANTIC SLOPE DRAINAGE.**—The minor flooding along the Merrimack River on the 7th and 8th was due to heavy rainfall (1.5 inches) on the 5th and moderately heavy snow melt. Despite the above normal snow accumulations, peak levels of the spring runoff were about normal. This condition resulted from a fortunate combination of favorable weather situations throughout the heavy snow-melt period. All rivers remained moderately high throughout the month. No damage was reported.

The flooding along the Connecticut River at and below Montague City, Mass., during April was comparatively light even though the flood potential in the Connecticut River Basin at the end of March was extremely high due to the near-record amount of very ripe snow in the central and upper portions (the average overall depth ranged from 15 to 18 inches with a water equivalent of 6 to 9 inches).

The river, however, as far north as White River Junction, Vt., was completely clear of ice by March 28 and was an important factor in preventing more serious flooding. The overflows were due to heavy rain (2 to 3 inches) on the 5th and 6th and heavy snow melt. The stage remained high at Hartford, Conn., (mean stage for April, 15.7 feet) throughout the month and was above the flood stage of 16 feet at that point for 15 days. A few roads and basements were flooded along with low-lying meadows.

The Mohawk and Hudson Rivers and tributaries rose to flood or near-flood levels over the week end of the 5th and 6th due to moderate to heavy



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS—Continued

APRIL 1952

rains and rapid snow melt. The Hudson crested at Albany, N. Y., at a stage of 9.5 feet, 1.5 feet below the flood stage of 11 feet, on the 6th. The overflows in the Schoharie Valley on the 5th and 6th were minor. Considerable damage resulted from the flooding of Esopus Creek in the Kingston, N. Y., area.

The light flooding in the Susquehanna River Basin above Towanda, Pa., during the first decade of the month was due to moderate to heavy rain. The rainfall over the Chemung Basin averaged 1.3 inches on the 5th and 6th. The rainfall over the Chenango and Susquehanna Basins on those dates was considerably less. No damages were reported.

General flooding occurred on Perkiomen Creek in Pennsylvania for a few hours on the 28th due to above-normal precipitation during the last decade of the month. Some light flooding was also reported on the Schuylkill River at Philadelphia, Pa. No damage was reported other than traffic detours.

Streams in the Potomac and Rappahannock Basins remained near normal with only minor fluctuations until the latter part of the month when 5 days of nearly continuous rains (April 23-28) caused slowly rising stages to the highest stage (14.2 feet) in 10 years at the Leiter gage near Washington, D. C., and the highest stage in tidewater at the Wisconsin Avenue gage at Washington since 1942. The only other flooding resulting from this storm was on the South Branch of the Potomac at Springfield, W. Va., and on the Monocacy River near Frederick, Md. The precipitation during this storm was the heaviest in the lower Potomac and in the Monocacy Basin where it averaged nearly 5.5 inches. The precipitation over the entire Potomac Basin averaged 3.8 inches and over the Rappahannock, 4.1 inches. Damages were comparatively light.

The light flooding on the James River at Columbia, Va., on the 28th was due to 5 days (24-28th) of nearly continuous rain. There were three crests in the Columbia area but only one exceeded flood stage. This same storm caused light flooding on the Roanoke, Neuse and Cape Fear Rivers in eastern North Carolina. No damage was reported except in the lower Roanoke where the extended period of flooding interfered with normal logging operations.

The Pee Dee River at Peedee, S. C., was in flood continuously for a period of 32 days from the beginning of March through the first 5 days of April. The Saluda River was in light flood from the 26th to the 28th.

High water continued on the Savannah River at Clio, Ga., from March 9 through the month of April. The Ogeechee River was in flood at Dover, Ga., from March 26 through April 5. No damage resulted from the flooding.

The Ocmulgee, Oconee and Altamaha Rivers continued high from the effects of the heavy rains and resultant rises which occurred during the latter part of March. These streams crested in the lower portion during the last few days of March and continued falling during April.

**EAST GULF OF MEXICO DRAINAGE.**—The Apalachicola River receded to within its banks at Blountstown, Fla., on the 12th for the first time since February 29, after being in flood for a total of 43 days. The total damages reported were comparatively small.

**UPPER MISSISSIPPI BASIN.**—Severe floods occurred along the Minnesota River at Mankato, Minn., for the second consecutive year. The crest of 24.8

feet at Mankato was 1.4 feet lower than the crest of 26.2 feet in 1951. The overflows, however, lasted 6 days longer in 1952 (24 days) than in 1951 (18 days). The flooding along the Minnesota River was due almost entirely to snow melt which began during the closing days of March. The winter snowfall (December through March) over the Minnesota Basin (19 stations) averaged 54.9 inches, 24.3 inches above normal. This was approximately the same as 1 year ago. Heavy damages resulted from the overflows.

The severe flooding along the main stem of the Mississippi River was also due to the rapid melting of the winter (December through March) snowfall which averaged 58.1 inches (24 stations), 27.4 inches above normal over the Mississippi Basin. The snow cover remaining on the ground over northern Minnesota and northern Wisconsin around the middle of February was not quite as great as during the winter of 1950-51. There was one outstanding difference this February in that the ground-water table was high throughout the upper Mississippi drainage, whereas in February 1951, the soil was drier than normal. By April 11 the only deep snow remaining was confined to extreme northern Minnesota and extreme northern Wisconsin.

The severe flood developed when unseasonably high temperatures caused a sudden and extensive thawing of the remaining snow cover, virtually all within 3 days and a considerable portion of it in one day. The critical aspect was further aggravated by the synchronization of peak discharges from all of the major tributaries which enter the Mississippi River above La Crosse, Wis. The simultaneous flow of the Minnesota and Mississippi Rivers created the highest flood at St. Paul, Minn., since river records were begun in 1866. The Chippewa River did not contribute much to the flood flow in the stretch below Lake Pepin as this valley had a lesser concentration of snow cover.

All tributaries, entering the Mississippi from east-central Iowa, northwestern Illinois, and extreme southern Wisconsin were quite low. Some of them were so low that some of the main stream flood water entered storage enroute and lowered the crest heights slightly in the reach between Dams 10 and 18, even though record high stages were reached upstream. The only contribution to the Mississippi River flood in this reach came from the Rock River which had a higher discharge than during the flood of April 1951. The crests in this reach of the Mississippi were slightly higher than in 1951. Minor flooding occurred from the 1st to the 5th of April in the Black, Root, Trempealeau, Kickapoo and Zumbro Rivers in Wisconsin and Minnesota.

In the ninety-mile reach above Keokuk Dam in Iowa, the crests were exceeded only by those in 1851 and 1951. In the reach below the dam mostly moderate flooding was reported with stages 1 to 2 feet below the stages reached in the 1947 flood. In the upper portion the absolute highest stages of record were reached at Stillwater, St. Paul, Hastings, Red Wing and Winona, Minn., and equalled at Reads, Minn. In the lower portion, the crest at St. Louis, Mo., was 33.8 feet, 3.8 feet above flood stage or 6.5 feet lower than the near-record 1951 crest of 40.3 feet. At Cape Girardeau, Mo., a few miles above the mouth of the Ohio River, the 1952 crest of 38.3 feet was 3.5 feet lower than the 1951 crest of 41.8 feet. This crest has been exceeded only 6 times since 1844, 5 of them oc-



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS—Continued

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curing in the last 9 years.

A comparative flood crest table is given below

which shows how the flood this year compared with previous record floods.

## UPPER MISSISSIPPI BASIN — COMPARATIVE FLOOD STAGES

River and Station	Flood Stage	1952		1951 Maximum #	Previous Maximum Flood of Record	
		Stage	Date		Stage	Date
Minnesota: Mankato, Minn.	19	24.8	4-14	26.2	25.2	June 1908
Mississippi:						
St. Paul, Minn.	14	22.1	4-16	18.8	19.7	April 1881
Hastings Dam, Minn.	15	21.0	4-16	18.9	15.1	March 1945
Red Wing, Minn.	14	16.9	4-18	16.3	15.3*	June 1880
Reads, Minn.	12	15.0	4 (18-19)	15.0	14.8*	June 1880
Winona, Minn.	13	17.9	4-20	17.4	16.9*	June 1880
La Crosse, Wis.	12	15.3	4-20	14.9	16.5	June 1830
Lansing, Iowa	18	18.1	4-23	17.8	19.9*	June 1880
Prairie du Chien, Wis.	13	21.0	4 (23-24)	20.8	21.3	June 1880
Dubuque, Iowa	17	22.7	4-25	22.7	21.7	June 1880
Clinton, Iowa	16	20.9	4-28	20.7	20.9*	June 1830
Davenport, Iowa	15	18.6	4-28	18.3	20.9*	March 1868
Muscataine, Iowa	16	21.1	4-28	21.0	19.5	April 1922
Keithsburg, Ill.	12	16.9	4-28	17.1	15.5	March 1929
Burlington, Iowa	15	17.9	4-28	18.1	17.6	May 1888
Keokuk, Iowa	16	19.0	4-24	May 20.25	21.0*	June 1851
Gregory Landing, Mo.	15	19.3	4-24	May 20.7	21.1	May 1944
Quincy, Ill.	17	21.9	4-25	May 22.9	23.9	June 1947
Hannibal, Mo.	16	21.7	4-25	May 22.6	24.1	June 1947
Louisiana, Mo.	15	19.9	4-26	May 20.5	22.3	June 1947
Grafton, Ill.	18	24.6	4-30/5-1	July 27.5	32.1*	June 1844
St. Louis, Mo.	30	33.8	5-1	July 40.3	41.4*	June 1844
Chester, Ill.	27	34.4	5/1-3	July 39.3	39.9*	June 1844
Cape Girardeau, Mo.	32	38.3	5-2	July 41.8	42.5*	July 1844

\* Prior to gage records.

# Occurred in April unless otherwise indicated.

Severe damages resulted from the flooding. The greatest losses were confined to towns along the Minnesota and Mississippi Rivers. At St. Paul, Minn., the Municipal Airport (Holman Field) was closed to night operations on the 10th and all planes were removed and the airport closed on the 11th. The depth of water over the airport ranged from 2 to 3 feet and amphibious craft were employed in transportation to buildings and hangars. The airport again resumed daytime operations on the 27th. Low-lying residential districts in St. Paul were inundated and industrial plants close to the river suffered losses to machinery and stocks by the flooding of basements. The large packing plants at South St. Paul placed embargoes on the receipt of stock animals. The twin cities Sewage Disposal Plant was put out of operation and was unable to function. Damages were reduced in many towns along the Minnesota and at St. Paul and South St. Paul by preventative measures such as dike construction and sand-bagging. This was especially true at Mankato, Minn., on the Minnesota River which suffered heavy losses in the 1951 flood.

Underground seepage was a problem at La Crosse, Wis., and Winona, Minn., and also to some extent at Prairie du Chien, Wis. The latter city did not have an opportunity to utilize dikes due to

the layout of the lower parts of the city. Many highways were closed temporarily along the river in all the cities from Red Wing, Minn., down to Prairie du Chien. Nearly 1,000 families were rendered homeless by flood waters in Winona, La Crosse and Prairie du Chien with several hundred more in the smaller towns along the flood plain of the Mississippi. Evacuation of families was greatest in the summer cottage areas where many families stay the year around, but are on too low ground for permanent dwellings.

Most of Cape Girardeau, Mo., is on a high hill, but there is a very important district on lower ground at the foot of the hill, on streets which parallel the river. Eighteen business places were affected by the flood in this area, most of them were flooded but others were protected by hastily-built sandbag barriers and the installation of pumping equipment. Thirteen dwellings in this area were flooded.

Privately-owned levees in the southern portion of Cape Girardeau prevented all but minor flood damage to the numerous factories and lumber mills located in that area. However, 24 dwellings in the Smelterville area were flooded.

The mud deposit left when the water subsided ranged from 4 inches in depth in the flooded buildings to about 1 foot on the streets. The clean-up



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job was accomplished by use of the Fire Department hose, bulldozers and small steam shovels.

Through train service between St. Louis, Mo., and Memphis, Tenn., was suspended on the morning of April 28th when the station and the tracks were submerged to such a depth that traffic over them became dangerous. While this condition existed, passengers were transported between Cape Girardeau and St. Louis on busses but regular rail service continued between Cape Girardeau and Memphis. Traffic northward from Cape Girardeau was resumed on May 7.

In Cape Girardeau, about 195 persons were temporarily rendered homeless by this flood.

This flood occurred before any considerable acreage had been planted to crops and, therefore, farm losses were negligible; ample time remained following recession of the water to prepare the soil and plant corn and soybeans, the principal crops of this section.

**MISSOURI BASIN.**—The flood of April 1952 in the upper Missouri Valley was the most devastating flood in the Northern Plains since the coming of white man.

The accumulation of snow during the winter of 1951 and 1952 was heavy over most of the Missouri Valley above Sioux City, Iowa. The heaviest of this snow field took the shape of a great arc, 200 to 300 miles wide, extending from Wisconsin and Minnesota across the northern two-thirds of South Dakota, southern and western North Dakota and on westward into Montana. The extended winter, and blizzards of February and March, blocked roads with large drifts of snow over much of South Dakota and western North Dakota. March remained cold and the spring thaws came late.

From the 20th to the 25th of March, reports indicated 15 to 25 inches of snow cover from northeastern South Dakota, down to Pierre and the lower portions of the Bad and White River Valleys. This heavy snow cover reached northwest from Pierre over most of the Cheyenne, the Moreau and the Grand River Valleys and on into the southwest portion of North Dakota. The entire snow field was badly drifted and the snow was quite compact, with high water equivalent, generally 0.25 to 0.30 inch of water per each inch of snow depth. The snow cover was much lighter over the counties along the South Dakota-Nebraska state line and in the Black Hills. As the last week of March came, the time had passed for a slow spring thaw and the upper Missouri Valley from Sioux City to Montana was "loaded" with a flood potential that was to build into the greatest April flood of history.

The unprecedented Missouri River flood during April was due to the following combination of conditions:

1. Abnormally high snow cover underlaid by a sheet of ice and frozen ground.
2. Heavy ice cover on the main stem and tributaries.
3. Delayed, rapid thaw.
4. Breakup of river ice in the upper reaches while the ice cover was holding downstream.

During the month of March, the ice on the Missouri River slowly broke away from Vermilion, to just below Geddes, S. Dak. Beginning April 1st the breakup accelerated reaching Chamberlain on April 2, Pierre on the 4th and Mobridge on the 5th. On April 1, from Mobridge upstream the Missouri across North Dakota and Montana, the ice was snow covered and very solid.

During the last few days of March, warm weather moved across the northern Rockies, across Wyoming, southern Montana, the western edges of the Dakotas and in a modified form it reached to western Iowa. Temperatures rose into the 60's and 70's over the Yellowstone River Basin in Montana and the Yellowstone's flood waters and ice piled into the Missouri River in the vicinity of Williston, N. Dak. At Williston, the Missouri's ice rose and buckled and broke and numerous ice jams began to form on April 1 and 2.

Severe flooding developed in the Milk River at Havre, Mont., on March 30 and at Nashua, Mont., near the confluence with the Missouri River on April 8. The crest of 31.43 feet at the latter point on the 18th was 4.5 feet above the previous highest stage of record (26.97 feet). All cities and towns along the river were subjected to damage, but the hardest hit were Havre and Chinook, Mont. The overflows lasted for an unusually long period - 2 to 4 weeks over most valley bottom lands, damaging alfalfa severely and delaying spring work well over a month. Total damage from flooding entire valley estimated at about \$3,000,000. At least 70 road bridges were washed out or damaged. Irrigation systems were badly washed and generally disrupted. Main highways were closed for several days.

The ice on the Yellowstone River broke at Sidney, Mont., early on March 31, reached a near-maximum stage and forced a heavy load of ice in the Missouri. Huge ice jams were formed and broken.

During the first few days of April, mild temperatures prevailed as far eastward as the Dakotas. The western tributaries, namely, the Little Missouri, Knife, Heart, Cannonball, Grand, Moreau and Cheyenne, all began to rise. Most of these streams reached bankfull or more before they began to shed their ice. When the breakup came on these tributaries, they were at a high stage and in a few days they were flooding heavily in their lower portions and dumping large quantities of ice and water into the ice-bound Missouri. Farther south, the Bad, White and Niobrara broke up during the last few days of March. Fort Pierre underwent a long period of flooding. First there was flooding from ice jams near the mouth of the Bad River and then came the flood on the Missouri.

The flood along the Little Missouri River in North Dakota affected 75 families. Ten homes suffered major damage and fifty homes minor damage. Very little damage occurred on the Heart River because of the protective dikes at Mandan, N. Dak., but Highway 10 between Bismarck and Mandan and some farm lands were inundated. On the Knife River, about 4 houses had major damage and fifteen minor damage. Some damage also occurred on the Cannonball River and Beaver Creek. The flooding along Beaver Creek was heavy with major damage resulting to 5 farm buildings and complete destruction to 10 others. Minor damage resulted to 15 other dwellings.

The ice breakup reached the mouth of the Little Missouri River at Elbowoods, N. Dak., on April 4. For several hours the Little Missouri released a tremendous volume of ice and water. This caused an immediate increase of stage and an acceleration of ice breakup on the Missouri River. The breakup was a spectacular sight. Chunks of ice as large as city blocks breaking loose, floating, grinding against each other, gorging, breaking again, moving down like an avalanche, ripping up the solid ice downstream. This process repeated itself per-



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happened hundreds of times, until it came to the end of the solid ice just north of Mobridge, S. Dak.

Flooding was severe along the Missouri River. At Williston, N. Dak., the Missouri crested on April 1 with a peak flow just short of the record 1930 ice breakup. At Elbowoods, the Missouri exceeded the highest stage of record by two feet on the 5th. The crest at Washburn during the night of the 5th and 6th was the highest ever known (estimated at 32 feet). At Bismarck, N. Dak., the crest of 27.9 feet (500,000 cfs) on the 6th was the highest stage since 1917 and the greatest flooding that anyone could remember. The Missouri River crested on the morning of the 9th at Mobridge, S. Dak., 9.1 feet above flood stage (16 ft.). Mobridge was the first gaging station to reach its crest as a free-flowing river.

In the meantime, the ice breakup had been progressing upstream from the south, releasing the impounded flow of the Bad, Cheyenne, Moreau and Grand Rivers in South Dakota. The last 50 miles of ice cover in the reach below Bismarck moved out on April 8. High tributary inflow prevented sharp reductions to the peak as it moved downstream.

The flood of 1952 was the worst disaster ever to strike Pierre and Fort Pierre, S. Dak. During the first week of April, Fort Pierre had been partly flooded because of ice jamming near the mouth of the Bad River. This had hardly subsided when the second week of April brought the devastating flood on the Missouri. Fort Pierre was 85 percent inundated; except for the few left behind to save the power and water plants, the town was completely evacuated. At the height of the flood, the power and water plants were lost and for a time the town was deserted. Across the river at Pierre, the capital of South Dakota, 100 blocks, most of the business section, was flooded. On April 10, the Missouri reached a crest of 25.35 feet at Pierre, 10.35 feet above flood stage.

For the second consecutive year, the heavy flooding occurred on the Big Sioux River at Sioux Falls, S. Dak. The flood this year was approximately one to two feet above the 1951 flood. The municipal airport began flooding during the early morning hours on April 6 and at 7 a.m. on that date the Weather Bureau Office was evacuated. Most of the furniture and office equipment was raised or moved. Very little damage occurred as a result even though there was 14½ inches of water above the floor level. During the heaviest flooding, two of the main west highways out of Sioux Falls were blocked and Highway 77 south had one-way traffic with 6 to 8 inches of water over the road. Approximately 375 people were evacuated from the Air Base Housing Area. Flooding of farmland along the Big Sioux was greater than in 1951. Total acreage flooded is estimated at 75 to 80 thousand acres. Although flooding was greater, losses are not expected to exceed the losses of last year.

Along the Missouri the flood progressed on downstream from Pierre. Stages rose very high where contained through narrow valleys. In other places, the crest dropped down as the river flooded widely across the valley. On April 11, the Missouri crest reached Chamberlain, S. Dak., reaching an all-time high of 25.55 feet; and a portion of the railroad bridge was swept away. The next day, a 22.55-foot crest passed Wheeler Bridge, near Geddes, S. Dak., and valley flooding was becoming very wide-spread from Geddes and Niobrara, Nebr., to Sioux City, Iowa.

South Sioux City, Nebr., a town of 6,200 population had had minor flooding in previous years, when the Missouri stage rose above 18 feet at Sioux City. A levee had been constructed from the town to 3 miles west, that was designed to hold the Missouri River up to a crest of 19.5 to 20 feet. On April 11, the Missouri rose over the levees, and in 36 hours, 75 percent of South Sioux City was inundated. On the day of the crest, only a small ridge at the south side of the town stood above the water.

From April 13 to 15, the south one-fourth of South Sioux City, Nebr., became an island. A strong current, 4 to 6 feet deep, from the Missouri River was passing over the northern half of the town. The Crystall Lake area was overflowing on the south side of town and there were flooded bottoms either to the west or east. For a time there was a real danger that the Missouri would cut a new channel through the Crystall Lake area, and perhaps erode half the town away. Fortunately, this did not develop. Looking south from Prospect Hill in Sioux City, flood waters spread over thousands of acres of fertile farm land.

North Sioux City, S. Dak., (formerly called Stevens) is a village of 700 people on the right bank of the Big Sioux River, about ¾ mile upstream from the confluence of the Big Sioux with the Missouri River. Except for only a few houses North Sioux City was completely inundated, mostly from backwater from the Missouri. In this same area, on the left bank of the Big Sioux, lay Riverside, a suburb of Sioux City and in Iowa. Never before had Riverside experienced more than fringe flooding. This time, it was 60 to 70 percent inundated.

In Sioux City, Iowa, 352 city blocks were flooded within the bounds of Sioux City. Some of these were in parks or vacant lots; but around 250 of these blocks were in residential or business areas. At the height of the flood, 15,000 people were evacuated from their homes in Sioux City and the bordering towns. The Easter week end was something of a nightmare. On Monday morning, April 14th, the crest of 24.3 feet set a new high record, and the April flood of 1881 was pushed into second place.

South Dakota farmers had suffered heavy losses from Yankton to Sioux City. Flooding ranged from 7 to 10 miles wide between Yankton and Vermilion S. Dak., and 3 to 5 miles wide from Vermilion to Sioux City. An estimated 200,000 acres were inundated in this section of the river valley. South of Gayville, entire farms were cut away, and farm buildings went down the river.

From Bismarck to Sioux City, approximately 500,000 acres were inundated, and between 30,000 and 40,000 people were homeless during the flood. All east-west highways and railroads were flooded as the high water progressed downstream.

The Missouri River crest reached Omaha, Nebr., on the 18th at a stage of 30.2 feet, 11.2 feet above flood stage or 5.55 feet above the previous maximum stage of record (24.65 feet in 1881). It travelled approximately 3.6 miles per hour during that one-week period between Pierre and Omaha (599 miles).

The levee and floodwalls protecting Omaha and Council Bluffs, Iowa, form a very narrow channel at that point on the Missouri and varies in width from 1,100 feet, five hundred feet below the gage to 2,000 feet, two miles above the gage. Four



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miles above the gage the flood walls were 1 mile apart. At the Bellevue, Nebr., gage, 13 miles downstream, the flood waters spread to a width of 3.5 miles and there the stage exceeded the historic flood of 1881 by 0.1 foot. Thirty-nine miles above the Omaha gage the flood water formed a huge lake 10 miles in width.

The last remaining levee (Unit L575) between Omaha and Rulo, Nebr., was overtopped on the 18th. The crest at Nebraska City, Nebr., was 27.7 feet, 1.9 feet above the previous maximum stage of record (1949). To lessen the destruction in Hamburg, Mo., the lower end of L575 was dynamited. The maximum discharge passed the Nebraska City gaging station on a falling stage as floodwaters raced through the levee breaks, inundating the entire valley.

In the evening of April 18, a big break occurred in an Omaha sewer tunnel behind the levee. The tremendous pressure on this "blow-out" was controlled by placement of steel beams, stone and sandbags over the outlet on the river side of the levee. One thousand acres were flooded behind the levee before the flow of water could be stopped. This type of sewer failure (blow-out) caused flooding of the Kansas City, Kans., Fairfax industrial district in the July flood of last year.

The rate of travel of the crest between Omaha and

Kansas City, Mo., decreased to 1.8 miles per hour and reached Kansas City on the 24th. The crest of 30.6 feet was 8.6 feet above flood stage but 7.4 feet below the previous record stage of 38 feet in 1844. It was 3.6 feet below the severe flood of 1951. Minor difficulty was experienced controlling sandboils behind levees. "Flash-board" levee extensions were placed along the upstream levees as a precautionary measure in the event heavy rains occurred.

Below Kansas City the flood waters were approaching maximum stages just high enough to overtop the upper tie-backs of the few remaining large levee units, but without sufficient energy to "break-out" at the lower end. Great quantities of water were impounded as the crest moved downstream. The last natural break-through of these entrapped flood waters occurred just above Lexington, Mo., releasing the contents of the 10,000 acre sunshine levee unit, giving a second crest of 30.1 feet on the 26th.

The crest at Waverly, Mo., approached within 0.2 foot of the previous record stage of 1951 (28.2 feet). Below that point the crest was from 5 to 10 feet below the flood of 1951 and that of 1844.

A comparison of the 1952 flood with the previous maximum flood of record is given in the following table:

MISSOURI RIVER - COMPARATIVE CRESTS

River and Station	Flood Stage	1952 Crests		Previous Maximum Crest of Record	
		Stage	Date	Stage	Date
Elbowoods, N. Dak.	17	25.2	4-5	23.1	March 1947
Washburn, N. Dak.	22	32.0	4-6	23.9	March 1927
Bismarck, N. Dak.	19	27.9	4-6	31.6*	March 1881
Mobridge, S. Dak.	16	25.1	4-9	19.6	March 1943
Pierre, S. Dak.	15	25.35	4-10	23.0*	March 1881
Chamberlain, S. Dak.	18	25.55	4-11	19.5	April 1943
Geddes, S. Dak.	12	22.55	4-12	17.7*	April 1927
Yankton, S. Dak.	12	15.5	4-13, 14	30.5	April 1881
Sioux City, Iowa	19	24.3	4-14	22.5	April 1881
Blair, Nebr.	19	23.5	4-17	21.8	April 1950
Omaha, Nebr.	19	30.2	4-18	24.65	April 1881
Nebraska City, Nebr.	15	27.7	4-18	25.8	March 1949
Rulo, Nebr.	17	25.6	4-22	21.5	June 1947
St. Joseph, Mo.	17	26.8	4-22, 23	27.2	April 1881
Atchison, Kans.	20	32.5	4-23	26.6	March 1949
Fort Leavenworth, Kans.	19	27.6	4-23	23.1	April 1881 & June 1943
Kansas City, Mo.	22	30.6	4-24	38.0*	June 1844
Napoleon, Mo.	17	24.6	4-24	26.85	July 1951
Lexington, Mo.	22	30.1	4-26	33.3	July 1951
Waverly, Mo.	18	28.1	4-24	28.2	July 1951
Glasgow, Mo.	25	32.1	4-27	36.7	July 1951
Boonville, Mo.	21	27.7	4-27	32.8	July 1951
Jefferson City, Mo.	23	26.1	4-27	34.2	July 1951
Hermann, Mo.	21	27.1	4-28	35.5	June 1844
St. Charles, Mo.	25	31.8	4-29	40.1*	June 1844

\* Prior to gage records.



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**OHIO BASIN.**--There were two minor floods on the Scioto River in Ohio during the month. The first, on the 14th, flooded only the upper portion of the Scioto, while during the second period, the 24th to 26th, the level of the entire river was raised to near or just a little above flood stage. No damage resulted from the flooding.

The Green River at Rumsey, Ky., continued above flood stage until the 11th. It crested on the 1st at a stage of 43.3 feet, 9.3 feet above flood stage.

The principal flooding in the Wabash Basin during April was due to the rainfall during the period from the 22d to the 24th. It averaged about 2 inches over the upper Wabash, 0.75 to 1.5 inches over the White River Basin and considerably less than one inch along the lower Wabash Basin. Little if any damage resulted from the flooding.

**WHITE, ARKANSAS AND RED BASINS.**--The flooding in the White Basin in Arkansas and Missouri was due to the heavy showers on the 11th and 12th which ranged from 2 to 3 inches. Damage from this flooding was negligible except for the continued loss of the land adjacent to the streams for agricultural purposes.

The flooding in the Arkansas Basin was minor and no damage was reported. The flooding on the Verdigris and Poteau Rivers was due to heavy rain on the 22d and 23d.

Minor flooding occurred in the Red Basin from the heavy thundershowers between the 9th and 12th. The precipitation on the 12th averaged 2.9 inches over the headwaters of the Sulphur and 2.5 inches over the headwaters of the Little. The rainfall was still heavier on the 20th, averaging nearly 4 inches over the Sulphur headwaters and almost 5 inches over the Little River Basin.

**LOWER MISSISSIPPI AND ATCHAFALAYA BASINS.**--Minor flooding occurred on the Tallahatchie River at Swan Lake, Miss., on the 1st and on the Yazoo River at Yazoo City, Miss., between the 12th and 17th. The Yazoo River rose gradually from the beginning of the month to the 12th when rains (slightly over an inch) caused the level of the river to rise slightly above flood stage. Very little if any damage resulted from the overflows.

The Atchafalaya River exceeded flood stage several times during the month at Morgan City, La., due to high tides and onshore winds. No damage was reported.

**WEST GULF OF MEXICO DRAINAGE.**--The flooding in the Trinity River Basin during the last decade of the month was due to excessive rains in the upper Trinity Basin between the 20th and 23d. The greatest overflow was along the East Fork of the Trinity where flood stage at Rockwall, Tex., was exceeded by 4.2 feet. There was insufficient flooding along the main channel to cause any overflow of farmlands. No significant damages were reported.

Moderate flooding occurred in the headwaters of the Sabine River at Mineola and Gladewater, Tex., and in the middle reach at Bon Weir, Tex., due to heavy rain from the 10th to the 13th and from the 20th to the 23d. The heaviest rain reported during the latter period was 8.42 inches at Bon Weir and 8.02 inches at Leesville with an average of 4 inches. Flood stage was almost reached at Logansport and Milam, Tex. Precipitation during the first 5 days of the month caused flooding along the upper Calcasieu and Nezpique Rivers. Damage was confined chiefly to roads, bridges, pasture and crop land and heavy machinery.

Considerable time was lost in industrial and agricultural work. Damage was moderate on the upper Sabine and upper Calcasieu and light on the lower Sabine.

**COLORADO BASIN.**--Bankfull stage was reached on the Gunnison River at Delta, Colo., on the 28th. The rise was brief and no actual overflow occurred.

**GREAT BASIN.**--Severe flooding was occurring in streams in northern Utah near the end of the month. Most of the flooding in the Salt Lake area was from 4 streams, namely, City Creek, Emigration Creek, Parleys Creek and Red Buttes Creek, which flow through Salt Lake City from hills directly to the north and east. Flooding commenced when storm sewers became clogged and were unable to handle the runoff. As snow melt increased, the runoff became excessive and was channeled down one of the main streets of Salt Lake City to the Jordan River. Low places within the city were flooded.

Runoff from major streams had not reached a peak by the end of the month. Reports from Brighton, Utah, in the mountains east of Salt Lake City show 41 inches of water in the snow pack. The average snow pack density on Snow Course Number 16 in that area was 49% on April 30. Since October 1, 1951, Brighton had 460 inches of snow, or 41.6 inches of water equivalent through March. Normal for this period at Brighton is 27.5 inches. Total snowfall at Alta, Utah, for the same period was 600 inches with water equivalent approximately 66 inches.

Flood damage was not severe in the Humboldt River Basin in Nevada, except that considerable damage occurred to the airport at Battle Mountain, Nev.

**OREGON AND CALIFORNIA COAST DRAINAGE.**--The heaviest flow since 1904 occurred on the Silvies and Blitzen Rivers and Silver Creek in Harney County, Oreg., during the period March 30 through April 1. This flooding was due to rapid melting of the heavy snow cover which averaged 150 to 200 percent of normal throughout the winter season (depth and water content). Flow on the Silvies River reached 3,500 cfs, compared with 3,400 cfs in 1943, but well under the 4,700 cfs recorded in 1904. Higher diking of the river prevented overflow into the city of Burns, but some damage was done in the city from runoff down the hills which rise immediately west of the business district. Principal damage was to railroad, highway bridges and grades but nearly half the monetary damage was sustained by privately-owned irrigation dams.

**CENTRAL VALLEYS OF CALIFORNIA.**--Some overflow occurred over the fixed sills of the Tisdale and Fremont Weirs most of the month. Precipitation was about normal during April over the drainage of the upper San Joaquin River but ranged from below to much below normal over the Sacramento drainage. As little as 20% of the monthly normal precipitation was reported by several stations in the upper Feather River Basin. Mean monthly temperatures over the Central Valleys during April averaged 1 to 2 degrees above normal at all elevations which resulted in moderately high flows on all streams. The I Street gage on the Sacramento River at Sacramento during April averaged 21.9 feet, 5.5 feet above normal.

Agricultural land adjacent to the Sacramento and Feather Rivers and in the delta was subjected to considerable seepage. At the end of the month many farmers had reported that they had been unable to plant crops or to work large acreages because of seepage that occurred as much as one mile



## GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS—Continued

APRIL 1952

away from the river. Some local flooding was reported in small high-elevation towns on the headwaters of the Feather and Pitt Rivers. Reports indicate that in each case this flooding was due to blocked culverts and small bridges rather than by excessive flow. On the lower San Joaquin River people living on the berm of the levee were forced to move to the top of the levee early in April.

COLUMBIA BASIN.—Extensive flooding occurred in the Snake River Basin during April. The flooding was due to the rapid melting of the record to near-record snow mantle between the 22d and 28th. The temperatures during this period averaged 10 to 15 degrees above normal.

The Snake River reached the highest stage (14.67 feet on 29th) since 1910 at Weiser, Idaho. Heavy flows from the Owyhee and Weiser Rivers, as well as above-normal flows from upstream and from the Boise and Payette Rivers combined to keep the Snake at Weiser above the 14-foot flood stage from the 16th through the 21st and again from the 27th on into May. There was some flooding on the Weiser River but there was no extensive damage. Some farmland near the mouth of the river was inundated and in the vicinity of Cambridge, Idaho, the approaches to the bridge were under water for 2 weeks or more. The highest stage reported at that point was 7.68 feet on the 27th and 28th, which was 0.62 foot below the highest stage recorded since 1939 (8.3 feet on March 31, 1940).

The Little Wood River near Carey, Idaho, went over its banks on the 22d necessitating sandbagging and other reinforcement of dikes to prevent serious flooding in the village of Carey. Although serious damage in the village was averted, some 1,500 acres of farmland south of town were inundated and 3

bridges north of the town were washed out. The highest stage reported on the U. S. Geological Survey gage 6 miles northwest of Cary was 8.95 feet on the 27th.

The Big Wood River overflowed its banks below Magic Reservoir after that reservoir had filled and water began running over the dam in the early morning of the 23d. Farmlands downstream were inundated and portions of U. S. Highway 93 were under water for several days. The U. S. Geological Survey stage recorder just below the dam was submerged on the 24th and the crest stage was finally determined from high water marks as 15.68 feet on the 28th. This surpassed the previous high stage of 13.31 feet recorded on April 13, 1943. Near Gooding, Idaho, a crest of 10.67 feet on the 29th, exceeded previous high of 9.8 feet on April 14, 1943. Preliminary estimates indicate damage to the extent of \$200,000 to \$300,000. Canals, diversions, dams, bridges, flumes, and roads were damaged and about 2,000 acres of farmland inundated.

Rapid snow melt on the Owyhee River brought an unprecedented runoff which resulted in rapid filling of Owyhee Reservoir. By April 11th, the reservoir was full and the overflow increased to a high of 20,500 cfs on the 15th. This far exceeded the previous peak flow of 14,600 cfs recorded on March 21, 1932. Six families residing in the narrow valley between the reservoir and the confluence of the Owyhee River with the Snake were forced to evacuate their homes, but the principal damage apparently occurred in the vicinity of Nyssa, Oreg., where the heavy discharges from the Owyhee raised the Snake above its banks in that area.



# FLOOD STAGE DATA

(All dates in April unless otherwise specified)

Table 5

APRIL 1952

River and station	Flood stage	Above flood stages -dates		Crest *		River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date			From-	To-	Stage	Date
HUDSON BAY DRAINAGE						MISSISSIPPI SYSTEM (Cont.) Upper Mississippi Basin (Cont.)					
Red of North:						Zumbro: Theilman, Minn.	12	Mar. 31	3	14.5	
Wahpeton, N. Dak.	10	8	21	15.0	12	Trempealeau: Dodge, Wis.	7	1	3	8.8	
Moorhead, Minn.	17	11	28	34.65	16	Black: Galesville, Wis.	12	3	3	14.0	
Grand Forks, N. Dak.	30	12	28	33.8	21	Root: Houston, Minn.	15	Mar. 31	2	17.6	
ST. LAWRENCE DRAINAGE Lake Michigan						Kickapoo: Steuben, Wis.	8	1	6	9.8	
Red Cedar:						Iowa: Wapello, Iowa	10	8	9	10.3	
Williamston, Mich.	7	14	15	8.2	14	Raccoon: Van Meter, Iowa	13	Mar. 31	1	14.8	
East Lansing, Mich.	8	14	16	9.2	15	Des Moines:					
Grand: Lansing, Mich.	11	15	15	11.0	15	Tracy, Iowa	14	3	6	15.3	
Shiawassee: Owosso, Mich.	7	14	14	7.1	14	Eddyville, Iowa	15	2	8	17.3	
Lake Erie						Ottumwa, Iowa	9	3	7	10.3	
St. Marys: Decatur, Ind.	13	24	26	15.6	25	Illinois:					
St. Joseph: Montpelier, Ohio	10	7	7	10.1	7	Morris, Ill.	13	14	14	13.7	
		14	16	11.9	15	La Salle, Ill.	20	13	19	22.6	
ATLANTIC SLOPE DRAINAGE						Peoria, Ill.	18	17	21	18.4	
Merrimack:						Havana, Ill.	14	Mar. 18	**	16.3	
Concord, N. H.	12	7	7	13.1	7					16.6	
Garvin Falls (Bow), N.H.	5.5	7	7	6.1	7	Beardstown, Ill.	14	Mar. 19	**	18.6	
Manchester, N. H.	7	7	7	7.2	7	Meramec:					
Lowell, Mass.	54	7	7	54.3	7	Sullivan, Mo.	11	5	5	11.5	
Lawrence, Mass.	20	7	8	20.8	7			13	14	12.7	
Connecticut:						Pacific, Mo.	11	6	7	15.0	
Montague City, Mass.	28	6	8	31.0	6			13	15	15.0	
Holyoke, Mass.	9	5	8	9.9	7	Valley Park, Mo.	14	6	7	16.5	
Hartford, Conn.	16	4	19	21.6	8			14	15	17.3	
Schuylkill: Philadelphia, Pa.	11.5	28	28	12.1	28	Mississippi:					
Chenango: Sherburne, N. Y.	8	5	6	8.8	5	Aitkin, Minn.	12	9	May 3	14.8	
Chemung:						Fort Ripley, Minn.	10	10	27	12.2	
Elmira, N. Y.	12	5	6	12.5	6	Minneapolis, Minn.	16	11	20	19.5	
Chemung, N. Y.	12	5	6	14.8	6	St. Paul, Minn.	14	9	May 1	22.1	
Susquehanna: Oneonta, N. Y.	12	1	5	14.5	6	Rastings, Minn.	15	9	30	21.0	
South Branch: Springfield, W. Va.	15	28	28	15.2	28	Red Wing, Minn.	14	12	27	16.9	
Monocacy: Frederick, Md.	15	27	28	17.9	27	Reads, Minn.	12	11	28	15.0	18,19
Potomac: Washington (nr), D. C.	10	27	May 1	14.1	28	Winona, Minn.	13	11	May 2	17.9	20
				14.2	29	La Crosse, Wis.	12	11	May 3	15.3	20
James: Columbia, Va.	18	28	28	18.1	28	Lansing, Iowa	18	22	24	18.1	23
Roanoke:						Prairie du Chien, Wis.	18	16	May 1	21.0	23, 24
Altavista, Va.	18	28	--	18.6	28	Cassville, Wis.	17	16	**	20.2	24
Randolph, Va.	21	29	--	21.2	29	Dubuque, Iowa	17	14	**	22.7	25
Weldon, N. C.	31	30	May 3	31.6	May 2	Bellevue, Iowa	17	18	**	20.1	25
Scotland Neck, N. C.	28	Mar. 27	2	30.1	Mar. 30	Clinton, Iowa	16	18	**	20.9	28
		30	May 5	28.9	May 4	Le Claire, Iowa	12	21	**	13.8	28
Williamston, N. C.	10	Feb. 29	11	11.4	2	Davenport, Iowa	15	18	**	18.6	28
		30	May 9	11.2	May 8	Fairport, Iowa	14	10	**	19.7	27, 28
Neuse:						Muscatine, Iowa	16	16	**	21.1	28
Smithfield, N. C.	13	28	30	13.2	29	Keithsburg, Ill.	12	8	**	13.1	11
Goldsboro, N. C.	14	Mar. 27	3	16.3	Mar. 31					16.9	28
Kinston, N. C.	14	Mar. 31	4	14.7	3	Burlington, Iowa	15	18	**	17.9	28
Cape Fear: Lock No. 2, Elizabeth-						Keokuk, Iowa	16	21	**	19.0	24
town, N. C.	20	30	May 1	20.7	30	Gregory Landing, Mo.	15	18	**	19.3	24
Saluda: Pelzer, S. C.	5	26	28	6.8	27	Quincy, Ill.	17	19	**	21.9	25
Savannah: Clio, Ga.	11	Mar. 9	**	16.6	Mar. 16	Hannibal, Mo.	16	10	**	17.1	14
				16.6	Mar. 21-23					21.7	25
				17.0	2	Louisiana, Mo.	15	11	**	16.2	14
				16.4	11					19.9	26
Ogeechee: Dover, Ga.	7	Mar. 26	5	8.1	2	Grafton, Ill.	18	13	**	19.8	10-17
Altamaha: Charlotte, Ga.	12	Feb. 23	11	20.9	Mar. 15					24.4	30-May 1
				20.1	3	St. Louis, Mo.	30	25	**	33.8	May 1
EAST GULF OF MEXICO DRAINAGE						Chester, Ill.	27	13	**	29.6	17-19
Apalachicola: Blountstown, Fla.	15	Feb. 29	12	21.5	Mar. 29, 30					34.4	May 2
MISSISSIPPI SYSTEM Upper Mississippi Basin						Cape Girardeau, Mo.	32	7	9	32.3	8
Minnesota: Mankato, Minn.	19	2	25	24.8	14			13	May 18	38.3	May 2
St. Croix: Stillwater, Minn.	12	14	19	14.7	16						
Chippewa: Durand, Wis.	11	10	11	11.9	10						



# FLOOD STAGE DATA

(All dates in April unless otherwise specified)

Table 5-Continued

APRIL 1952

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM (Cont.) <u>Missouri Basin</u>	<i>Ft.</i>			<i>Ft.</i>	
McEachern Creek (Mont.): International Boundary	--	--	--	13.9	15
Horse Creek (Mont.): International Boundary	--	--	--	11.8	15
Battle Creek (Mont.): International Boundary	--	--	--	10.6	15
Milk: Nashua, Mont.	20	8	26	31.4	18
James: Ashton, S. Dak.	15	10	**	18.1 19.6	13 24
Huron, S. Dak.	11	5	**	15.3 14.8	15 28
Big Sioux: Akron, Iowa	12	Mar. 29	May 1	19.8 17.7	1 10
Little Sioux: Correctionville, Iowa	19	3	6	20.3	4
Big Blue: Blue Rapids, Kans.	20	13	13	20.8	13
Missouri:					
Elbowoods, N. Dak.	17	—	—	25.2	5
Riverdale, N. Dak.	90	2	11	101.9	5
Washburn, N. Dak.	22	5	7	32.0	6
Bismarck, N. Dak.	19	6	9	27.9	6
Mobridge, S. Dak.	16	5	12	25.1	9
Pierre, S. Dak.	15	1 4 5	3 4 14	17.1 17.0 25.4	3 4 10
Chamberlain, S. Dak.	18	8	14	25.6	11
Geddes, S. Dak.	12	5	16	22.6	12
Yankton, S. Dak.	12	10	17	15.5	13-14
Sioux City, Iowa	19	10	17	24.3	14
Decatur, Nebr.	--	--	--	23.3	15-16
Blair, Nebr.	19	5	24	23.5	17
Omaha, Nebr.	19	7	24	30.2	18
Plattsmouth, Nebr.	952.5	--	--	961.4	18
Nebraska City, Nebr.	18	8	28	27.7	18
Rulo, Nebr.	17	1	May 5	25.6	22
St. Joseph, Mo.	17	8	May 2	26.8	22-23
Atchison, Kans.	22	11	May 2	32.5	23
Fort Leavenworth, Kans.	19	13	May 3	27.6	23
Kansas City, Mo.	22	20	28	30.6	24
Napoleon, Mo.	17	15	May 1	24.6	24
Lexington, Mo.	22	14	May 5	30.1	26
Waverly, Mo.	18	2	May 6	28.1	24
Glasgow, Mo.	25	16	May 4	32.1	27
Boonville, Mo.	21	13	May 4	27.7	27
Jefferson City, Mo.	23	23	May 2	26.1	27
Hermann, Mo.	21	13	**	23.2 27.1	17 28
St. Charles, Mo.	25	6 13	7 **	25.3 27.5 31.8	6 17 29
<u>Ohio Basin</u>					
Scioto:					
La Rue, Ohio	11	14 24	14 25	11.2 11.6	14 25
Circleville, Ohio	14	25	26	15.0	25
Green: Lock No. 2, Rumsey, Ky.	34	Mar. 13	11	43.3	1
West Fork:					
Spencer, Ind.	14	6 15	6 16	14.7 14.7	6 15
Elliston, Ind.	18	6 14	8 18	20.6 22.3	7 16
Edwardsport, Ind.	12	Mar. 11	23	20.0 19.3 12.0	Mar. 16 17 27, 28
White: Petersburg, Ind.	16	7 15	12 21	18.5 18.8	10 19

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
MISSISSIPPI SYSTEM (Cont.)					
Ohio Basin (Cont.)					
Wabash:					
Bluffton, Ind.	10	26	26	10.4	26
Wabash, Ind.	12	14 24	15 26	13.2 17.5	14 24
Lafayette, Ind.	11	7 14 24	7 17 28	11.0 16.4 18.5	7 15 25
Covington, Ind.	16	14 24	18 29	19.5 21.4	16 27
Montezuma, Ind.	14	8 14 25	8 20 30	14.1 18.6 20.0	8 17, 18 28
Terre Haute, Ind.	14	14 26	20 **	16.0 16.5	18 29
Mt. Carmel, Ill.	17	10 16	12 22	17.5 18.5	11 20
Tennessee: Gilbertsville, Ky.	31	Mar. 12	8	43.4	Mar. 26
Ohio:					
Mount Vernon, Ind.	35	Mar. 18	5	42.5	Mar. 31
Dam No. 49, Uniontown, Ky.	37	Mar. 18	5	44.5	Mar. 31
Shawneetown, Ill.	33	Mar. 14	7	45.1	1
Dam No. 50, Fords Ferry, Ky.	34	Mar. 13	8	48.0	Mar. 31
Dam No. 53, Mound City, Ill.	42	Mar. 13	10	48.0 51.5	Mar. 17 Mar. 27
Cairo, Ill.	40	Mar. 13	9	47.5 50.7 41.8 42.4 44.1	Mar. 17 Mar. 27 19 26 May 5
White Basin					
Black: Black Rock, Ark.	14	Mar. 11	**	20.1	14
Little Red: Judsonia, Ark.	30	14 24	15 25	32.7 32.1	14 24
White:					
Augusta, Ark.	32	Mar. 24 15	4 **	32.3 32.8	Mar. 31 17
Georgetown, Ark.	21	Mar. 15 14	10 **	22.2 23.2	1 26
Des Arc, Ark.	24	Mar. 18 16	9 **	24.9 25.9	Mar. 27 27
Clarendon, Ark.	26	Mar. 15	**	28.7	29
St. Charles, Ark.	25	Mar. 18	**	27.1	5
Arkansas Basin					
Verdigris: Coyville, Kans.	28	23	23	28.4	23
Poteau: Poteau, Okla.	24	12 26	13 **	25.2 25.4	12 29
Red Basin					
Ouachita:					
Arkadelphia, Ark.	17	2 13 23	3 16 26	21.1 23.8 22.8	2 13 24
Camden, Ark.	26	5 14	9 **	28.0 35.3 34.0	6 18 29
Little: White Cliffs, Ark.	25	13 23	19 30	27.9 29.5	15 25
Sulphur:					
Hagansport, Tex.	38	12 21	15 28	41.8 43.2	13 23
Naples, Tex.	22	13	May 4	28.5 31.5	16 25
McCartney Bridge, Tex.	20	12	**	27.5 31.6	21 29
Cypress: Jefferson, Tex.	18	18 28	21 May 1	19.6 21.5	19 28
Red:					
Fulton, Ark.	27	25	28	28.2	26
Grand Ecore, La.	33	29	May 3	33.9	30
Alexandria, La.	32	28	**	----	--
Lower Mississippi Basin					
St. Francis:					
Fisk, Mo.	20	7 13	9 22	20.5 23.2	8 16, 17



# FLOOD STAGE DATA

(All dates in April unless otherwise specified)

APRIL 1952

Table 5-Continued

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
<b>MISSISSIPPI SYSTEM (Cont.)</b>	<b>Ft.</b>			<b>Ft.</b>	
<u>Lower Mississippi Basin (Cont.)</u>					
St. Francis: (Cont.)					
St. Francis, Ark.	18	Mar. 13	5	20.7	Mar. 17, 19
		12	27	19.7	21
Yazoo: Yazoo City, Miss.	29	12	17	29.3	13
Mississippi:					
New Madrid, Mo.	34	Mar. 15	12	40.2	Mar. 28
Caruthersville, Mo.	32	Mar. 15	13	38.8	Mar. 29
Memphis, Tenn.	34	Mar. 23	■	37.1	1
Helena, Ark.	44	Mar. 29	■	45.5	3
<u>Atchafalaya Basin</u>					
Atchafalaya: Morgan City, La.	6	3	4	6.3	4
		11	15	7.1	12
		20	25	6.5	23
<b>WEST GULF OF MEXICO DRAINAGE</b>					
Calcasieu: Kinder, La.	16	26	30	19.5	29
Sabine:					
Mineola, Tex.	14	13	May 1	18.3	26
Gladewater, Tex.	26	23	May 6	35.1	29
Bon Wier, Tex.	17	23	29	20.7	25
East Fork: Rockwall, Tex.	10	22	26	14.2	24
Trinity:					
Dallas, Tex.	28	23	24	29.2	23
Trinidad, Tex.	28	24	28	31.5	26
Long Lake, Tex.	40	29	**	41.3	30
Liberty, Tex.	24	24	26	25.2	25
<b>GULF OF CALIFORNIA DRAINAGE</b>					
<u>Colorado Basin</u>					
Gunnison: Delta, Colo.	11	28	28	11.0	28
<b>PACIFIC SLOPE DRAINAGE</b>					
<u>Sacramento Basin</u>					
Sacramento:					
Tisdale Weir	45.5	Mar. 7	**	48.2	Mar. 17
				46.9	14
Fremont Weir	33.8	Mar. 31	**	35.1	29
<u>Columbia Basin</u>					
Snake: Weiser, Idaho	14	16	21	---	---
		27	**	14.7	29

\* Provisional.

\*\* Continued at end of month.



# RADIOSONDE DATA

Average monthly values

APRIL 1952

Table 20

ALBUQUERQUE, N. MEX. (836 MB.)				ATLANTA, GA. (981 MB.)				BIG SPRING, TEX. (925 MB.)				BISMARCK, N. DAK. (957 MB.)				BOISE, IDAHO (915 MB.)				BROWNSVILLE, TEX. (1015 MB.)				BUFFALO, N. Y. (989 MB.)				
Standard pressure surface (mb.)																												
Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				
Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				
Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				
Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				
SURFACE	30	1,629	14.1	37	30	309	15.6	60	30	784	17.9	37	30	505	8.7	63	29	868	12.8	47	30	7	21.0	77	30	221	7.1	75
1,000---	30	72			30	142			30	109			30	131			29	110			30	132	20.1	76	30	127		
950----	30	520			30	579	16.0	51	30	554			30	562	8.3	56	29	552			30	577	18.3	71	30	556	8.3	60
900-----	30	980			30	1,038	12.4	52	30	1,018	17.2	37	30	1,011	9.4	45	29	1,006	14.2	35	30	1,037	17.1	51	30	997	6.0	69
850-----	30	1,477			30	1,514	8.6	57	30	1,502	13.9	40	30	1,482	6.3	43	29	1,486	11.2	35	30	1,523	15.0	47	30	1,463	3.6	59
800-----	30	1,989	12.1	33	30	2,012	5.0	62	30	2,010	10.3	45	30	1,977	3.5	37	29	1,988	7.1	40	30	2,034	12.7	46	30	1,953	1.1	56
750-----	30	2,532	7.6	37	30	2,542	2.7	50	30	2,549	6.7	48	30	2,502	4	33	29	2,520	3.1	42	30	2,584	9.8	49	30	2,471	1.6	54
700-----	30	3,089	2.6	45	30	3,092	-2	43	30	3,106	3.0	45	30	3,047	-3.4	34	29	3,070	-1.1	46	30	3,144	6.7	47	30	3,016	-4.2	49
650-----	30	3,682	-2.2	52	30	3,685	-3.5	41	30	3,703	-6	40	30	3,632	-7.1		29	3,661	-5.1	44	30	3,755	3.2	42	30	3,599	-7.3	47
600-----	30	4,313	-7.2	53	30	4,311	-7.1	39	30	4,337	-4.9	33	30	4,248	-11.0		29	4,280	-8.9	41	30	4,394	-1.4	42	30	4,216	-10.7	47
550-----	30	4,982	-12.4	52	30	4,988	-11.0	36	30	5,014	-9.8		30	4,917	-15.4		29	4,956	-13.2	36	30	5,085	-6.4	36	30	4,883	-14.8	44
500-----	29	5,708	-17.7	11	30	5,710	-15.9		30	5,743	-14.9		30	5,624	-20.1		29	5,668	-17.9		30	5,819	-11.7	36	30	5,596	-19.5	43
450-----	29	6,491	-23.3	40	30	6,499	-21.7		30	6,532	-20.8		30	6,399	-26.1		29	6,451	-23.7		28	6,628	-16.9		30	6,375	-24.8	43
400-----	29	7,340	-29.8		30	7,353	-27.8		30	7,391	-27.1		30	7,237	-32.5		29	7,296	-30.2	36	28	7,492	-22.6		30	7,216	-30.9	42
350-----	29	8,277	-37.0		30	8,299	-34.8		30	8,338	-34.4		29	8,162	-40.0		29	8,231	-37.6		25	8,460	-29.3		30	8,150	-37.7	43
300-----	29	9,326	-44.5		29	9,357	-42.4		30	9,397	-42.5		29	9,196	-48.0		29	9,277	-45.7		25	9,542	-37.4		27	9,196	-45.2	
250-----	29	10,525	-52.4		30	10,565	-51.1		30	10,604	-51.2		28	10,375	-55.2		28	10,472	-54.1		22	10,777	-47.0		27	10,397	-52.5	
200-----	29	11,945	-58.8		29	11,989	-58.5		28	12,024	-58.8		27	11,782	-57.8		25	11,882	-59.7		20	12,221	-57.3		23	11,825	-56.9	
175-----	29	12,781	-59.3		29	12,825	-59.6		27	12,859	-59.9		27	12,625	-56.9		27	12,719	-59.3		20	13,054	-61.7		21	12,682	-56.4	
150-----	28	13,748	-58.7		27	13,789	-58.9		27	13,821	-59.8		26	13,598	-55.2		21	13,680	-57.4		20	14,001	-64.5		21	13,663	-54.5	
125-----	26	14,889	-59.7		27	14,922	-60.7		23	14,952	-61.2		26	14,760	-55.7		18	14,831	-56.2		20	15,106	-67.3		20	14,838	-55.2	
100-----	25	16,275	-61.8		26	16,300	-62.7		20	16,332	-63.9		25	16,173	-56.2		18	16,244	-56.8		30	16,443	-69.5		19	16,364	-64.2	
80-----	24	17,651	-62.4		24	17,670	-62.8		18	17,701	-64.5		24	17,593	-56.5		18	17,655	-57.8		10	17,770	-69.5		18	17,674	-57.0	
60-----	23	19,134	-60.5		18	19,149	-60.2		16	19,171	-62.5		22	19,141	-56.7		18	19,470	-57.0		9	19,504	-63.3		18	19,497	-55.8	
50-----	21	20,570	-58.4		16	20,593	-58.8		15	20,606	-59.0		21	20,566	-55.5		18	20,625	-55.9		9	20,636	-59.0		16	20,657	-54.9	
40-----	18	21,975	-56.4		14	22,003	-56.9		14	22,014	-56.6		15	21,999	-54.9		17	22,050	-54.8		6	22,038	-55.7		9	22,069	-54.3	
30-----	12	23,810	-54.6		10	23,836	-54.6		13	23,848	-53.8		11	23,862	-53.3		14	23,894	-52.9		6	23,882	-53.0		6	23,941	-52.8	
20-----									6	26,499	-49.7		5	26,469	-50.4													

BURRWOOD, LA. (1017 MB.)				CARIBOU, ME. (991 MB.)				CHARLESTON, S. C. (1015 MB.)				COLUMBIA, MO. (989 MB.)				DODGE CITY, KANS. (925 MB.)				EL PASO, TEX. (1017 MB.)				ELY, NEV. (807 MB.)				
Standard pressure surface (mb.)																												
Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				
Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				
Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				
Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				
SURFACE	30	3	18.4	81	30	191	2.0	67	30	13	14.6	81	30	238	11.8	60	30	792	9.3	70	30	1,195	18.0	33	30	1,908	6.1	65
1,000---	30	148	19.4	67	30	116			30	143	16.9	65	30	139			30	137			30	75			30	113		
950----	30	590	16.5	60	30	536	3.2	55	30	581	15.0	56	30	573	11.9	54	30	567			30	529			30	556		
900-----	30	1,046	13.5	54	30	969	1.1	56	30	1,035	12.1	55	30	1,021	8.7	57	30	1,021	10.0	59	30	996			30	1,013		
850-----	30	1,525	11.6	43	30	1,426	-1.5	59	30	1,512	9.0	52	30	1,492	6.4	54	30	1,494	7.8	56	30	1,485	17.3	30	30	1,482		
800-----	30	2,030	10.0	30	30	1,907	-4.0	56	30	2,011	6.5	46	30	1,987	3.6	52	30	1,992	5.8	55	30	1,998	13.0	34	30	1,984	7.8	55
750-----	30	2,571	7.3		30	2,418	-6.5	56	30	2,542	3.7	42	30	2,517	1.0	50	30	2,520	3.1	51	30	2,543	8.5	39	30	2,520	4.6	50
700-----	30	3,128	4.0		30	3,250	-8.9	52	30	3,096	-7.7	38	30	3,061	-1.8	48	30	3,073	-3.4	48	30	3,101	3.5	43	30	3,070	1.1	54
650-----	29	3,727	-8		30	3,528	-11.3	47	30	3,692	-2.8	32	30	3,652	-5.3	49	30	3,664	-4.0	46	30	3,702	-6.9	54	30	3,663	-4.2	53
600-----	29	4,366	-3.2		30	4,131	-14.5	41	30	4,317	-6.6	30	30	4,271	-8.9	47	29	4,287	-7.9	42	30	4,332	-5.4	44	30	4,286	-8.1	47
550-----	29	5,054	-7.4		30	4,790	-18.8		29	4,997	-10.5		29	4,941	-13.1	44	29	4,958	-12.3	36	30	5,012	-10.3		30	4,962	-12.8	45
500-----	29	5,785	-12.3		30	5,489	-23.4		29	5,656	-17.5		29	5,656	-17.5		29	5,679	-17.5	33	30	5,737	-13.7		30	5,676	-17.7	
450-----	29	6,598	-17.5		30	6,258	-28.5		29	6,440	-23.6		29	6,440	-23.6		29	6,460	-23.6	33	30	6,530	-20.9		30	6,492	-20.9	
400-----	29	7,455	-23.6		30	7,086	-34.3		29	7,371	-26.5		29	7,285	-30.0		28	7,311	-29.6		30	7,384	-27.3		30	7,360	-29.9	37
350-----	27	8,418	-31.0		30	8,007	-40.4		28	8,324	-34.0		29	8,222	-37.3		28	8,248	-37.0		30	8,330	-34.6		30	8,242	-37.2	
300-----	27	9,492	-39.4		29	9,046	-46.5		27	9,386	-42.1		29	9,269	-45.2		28	9,297	-44.6		30	9,389	-42.4		29	9,291	-45.2	
250-----	27	10,713	-48.9		29	10,242	-51.2		27	10,603	-50.3		28	10,463	-52.4		28	10,494	-52.4		30	10,599	-50.5		29	10,484	-53.3	
200-----	26	12,148	-57.8		28	11,680	-52.4		26	12,033	-58.1		26	11,885	-56.3		27	11,915	-57.6		29	12,028	-57.8		28	11,897	-59.4	
175-----	26	12,984	-60.5		27	12,535	-51.6		26	12,870	-59.6		24	12,740	-56.3		27	12,758	-57.6		28	12,865	-59.5		28	12,732	-59.0	
150-----	24	13,942	-63.3		25	13,538	-58.7		24	13,877	-58.7		24	13,718	-56.1		27	13,732	-56.9		28	13,840	-59.1		27	13,824	-57.4	
125-----	22	15,064	-63.3		25	14,716	-52.9		23	14,977	-60.3		24	14,872	-57.7		27	14,884	-57.8		28	14,967	-61.3		26	14,853	-57.3	
100-----	19	16,426	-64.9		24	16,148	-54.2		23	16,355	-62.6		21	16,281	-58.6		26	16,284	-59.3		27	16,343	-64.1		24	16,269	-58.4	
80-----	17	17,775	-65.8		19																							



# RADIOSONDE DATA

Average monthly values

APRIL 1952

Table 20-Continued

JOLIET, ILL. (995 MB.)				LAKE CHARLES, LA. (1017 MB.)				LANDER, WYO. (828 MB.)				LAS VEGAS, NEV. (935 MB.)				LITTLE ROCK, ARK. (1007 MB.)				MEDFORD, ORE. (968 MB.)				MERIDA, MEXICO (1012 MB.)				
Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				
Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	
SURFACE	30	179	8.5	71	30	5	17.6	79	30	1,096	7.8	52	30	660	19.0	33	30	79	13.8	72	30	401	11.6	54	21	27	25.6	65
1,000	30	133	5.5		30	147	18.4	57	30	104			30	72			30	137	15.4	62	30	121			21	130	21.7	68
950	30	562	10.1	52	30	587	16.0	64	30	513			30	525			30	578	11.7	56	30	560	15.7	12	21	581	22.7	65
900	30	1,008	7.7	55	30	1,042	13.3	61	30	1,009			30	945	18.6	50	30	1,028	12.0	56	30	1,043	12.1	44	21	1,049	20.7	59
850	30	1,477	5.0	56	30	1,522	11.3	48	30	1,476	8.4	43	30	1,471	11.5	34	30	1,504	8.9	56	30	1,489	8.6	49	21	1,542	17.6	63
800	30	1,969	2.2	55	30	2,026	9.3	40	30	1,979	4.4	43	30	1,979	10.2	39	30	2,004	6.3	53	30	1,987	4.7	52	21	2,057	14.0	66
750	30	2,495	-6.5	53	30	2,568	7.2	35	30	2,509	4.5	46	30	2,515	8.6	41	30	2,536	3.9	49	30	2,513	1.1	49	21	2,601	10.8	62
700	30	3,036	-3.5	52	30	3,124	4.0	34	30	3,065	4.1	51	30	3,071	1.6	50	30	3,088	8	48	30	3,061	2.2	45	21	3,172	7.7	57
650	30	3,623	-6.6	50	30	3,726	-3.3	33	30	3,637	-4.4	56	30	3,667	3.3	45	29	3,634	-2.6	42	30	3,651	-5.5	46	21	3,789	5.0	41
600	30	4,240	-10.4	46	29	4,358	-3.7		30	4,280	-8.6	52	30	4,290	7.1	38	29	4,310	-6.2		29	4,267	-9.2	44	21	4,430	1.5	
550	29	4,904	-14.9	44	29	5,043	-8.2		30	4,953	13.2	50	30	4,968	-11.6		29	4,993	-10.6		29	4,939	-13.4	42	21	5,130	2.8	
500	29	5,616	-19.7		29	5,773	-13.4		30	5,667	-18.3	46	30	5,686	-16.6		29	5,712	-15.8		29	5,653	-18.3	41	21	5,875	-7.3	
450	26	6,374	-26.0		29	6,571	-18.8		29	6,445	-24.4	42	30	6,471	-22.5		29	6,502	-21.5		29	6,437	-24.1	44	21	6,697	12.1	
400	25	7,210	-32.4		29	7,434	-25.2		27	7,207	-30.7	42	30	7,224	-29.1		29	7,255	-27.8		29	7,279	-30.2	41	21	7,579	18.1	
350	23	8,159	-39.5		29	8,398	-32.2		26	8,219	-38.2		30	8,263	-36.5		29	8,301	-34.7		29	8,213	-37.6		21	8,560	-25.7	
300	28	9,196	-47.2		29	9,458	-40.3		25	9,256	-46.9		30	9,313	-44.7		29	9,360	-42.5		29	9,259	-45.9		21	9,556	-31.5	
250	27	10,390	-55.6		29	10,676	-49.5		23	10,431	-54.7		30	10,510	-52.7		29	10,569	-50.8		29	10,447	-54.9		21	10,904	-44.3	
200	26	11,805	-57.3		25	12,105	-58.4		18	11,842	-57.1		29	11,920	-59.0		21	11,995	-58.0		26	11,855	-60.7		18	12,371	-55.3	
175	23	12,655	-56.6		25	12,941	-60.2		16	12,678	-56.5		29	12,763	-58.6		28	12,836	-58.2		25	12,690	-59.9		17	13,212	-61.1	
150	20	13,632	-55.0		23	13,900	-60.5		15	13,667	-55.5		29	13,789	-57.3		26	13,864	-57.9		25	13,659	-58.0		14	14,146	-66.1	
125	17	14,807	-56.2		19	15,021	-62.2		13	14,838	-55.4		27	14,891	-58.5		24	14,938	-58.5		23	14,819	-58.6		10	15,246	-70.1	
100	17	16,220	-57.2		19	16,394	-61.3		11	16,256	-58.2		26	16,285	-59.7		22	16,336	-61.2		23	16,221	-58.7		8	16,562	-72.1	
75	12	17,641	-57.4		16	17,748	-64.6		10	17,665	-58.1		26	17,677	-60.8		21	17,718	-61.1		23	17,623	-57.9		7	17,856	-75.6	
50	10	19,472	-57.1		16	19,515	-61.2		8	19,486	-57.3		20	19,477	-59.4		20	19,511	-59.3		22	19,439	-57.2		5	19,825	-71.1	
25	10	20,628	-55.9		14	20,652	-58.7		8	20,613	-55.6		23	20,619	-58.1		18	20,655	-57.8		22	20,592	-56.5		5	20,918	-64.9	
0	9	22,056	-54.5		13	22,059	-56.6		6	22,046	-55.9		22	22,027	-55.7		14	22,068	-56.1		21	22,016	-54.9		5	21,933	-59.6	
30	5	23,913	-52.6		12	23,908	-52.7						19	23,871	-53.9		11	23,905	-54.1		19	23,858	-53.1					
20					7	26,576	-48.3						15	26,465	-51.1		7	26,529	-50.2		8	26,466	-51.5					
15													10	28,361	-49.1													

MIAMI, FLA. (1017 MB.)				NANTUCKET, MASS. (1013 MB.)				NASHVILLE, TENN. (996 MB.)				NORTH PLATTE, NEBR. (918 MB.)				OAKLAND, CALIF. (1015 MB.)				OKLAHOMA CITY, OKLA. (971 MB.)				OMAHA, NEBR. (983 MB.)				
Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	
SURFACE	30	149	21.4	66	28	14	6.3	87	30	177	13.8	65	30	649	7.9	68	30	6	13.5	71	29	391	12.8	67	18	390	9.2	65
1,000	30	588	17.8	68	28	123	7.2	78	30	140	10.8		30	135			30	132	12.2	71	29	144			18	154		
950	30	1,052	11.6	65	28	551	8.5	63	30	974	13.0	55	30	568			30	569	11.2	66	29	576	13.8	55	18	592	8.9	52
900	30	1,533	12.1	57	28	893	6.7	63	30	1,026	10.0	55	30	1,047	9.0	56	30	1,013	10.3	55	29	1,028	10.8	56	18	1,027	5.8	55
850	30	2,039	9.7	44	28	1,406	4.2	60	30	1,498	6.6	59	30	1,487	8.4	41	30	1,502	8.2	55	29	1,502	8.2	55	18	1,494	1.1	51
800	30	2,578	7.5		28	1,951	1.4	60	30	1,993	3.9	56	30	1,983	5.8	57	30	1,966	5.8	33	29	2,001	6.0	51	18	1,985	9	48
750	30	3,136	4.9		28	2,471	-1.4	59	30	2,521	1.2	51	30	2,509	1.1	59	30	2,518	3.1	33	29	2,555	3.9	45	18	2,511	-6	
700	30	3,739	1.3		28	3,015	-4.1	52	30	3,068	1.8	49	30	3,057	1.8	55	29	3,086	-2.2	33	29	3,085	-2.8	41	18	3,053	-3.3	
650	30	4,377	-2.4		27	4,213	-10.8	48	30	4,278	8.7	42	30	4,287	-9.2	41	29	4,295	-7.9	34	29	4,306	-7.1	39	18	4,257	-10.1	
600	29	5,060	-6.6		26	4,978	-15.1	45	30	4,947	-12.7	37	30	4,950	-13.5	40	29	4,957	-12.2	31	29	4,983	-11.5	32	18	4,926	-14.5	
550	28	5,800	-10.8		26	5,587	-19.7	41	30	5,668	-17.3	34	30	5,653	-18.7	30	29	5,676	-17.2	33	29	5,703	-16.5		18	5,638	-19.3	
500	27	6,607	-16.2		26	6,366	-25.2		30	6,452	-23.0		30	6,431	-24.6	39	29	6,456	-23.1	34	29	6,481	-22.1		18	6,417	-25.3	
450	27	7,481	-22.5		26	7,206	-31.2		29	7,268	-29.1		30	7,275	-31.1		29	7,310	-29.3	36	29	7,311	-28.8		18	7,257	-31.9	
400	26	8,443	-30.1		25	8,129	-38.5		29	8,238	-36.1		30	8,206	-38.6		29	8,248	-36.7		29	8,280	-36.3		18	8,187	-39.3	
350	26	9,521	-38.3		25	9,180	-45.7		29	9,289	-43.7		29	9,252	-46.1		29	9,297	-44.7		28	9,326	-44.7		17	9,222	-47.1	
300	26	10,751	-47.7		25	10,374	-52.6																					



# RADIOSONDE DATA

Average monthly values

Table 20—Continued

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Standard pressure surface (mb.)	SANTA MARIA, CALIF. (1007 MB.)				S. STE. MARIE, MICH. (989 MB.)				SPOKANE, WASH. (931 MB.)				SWAN ISLAND, W. I. (1013 MB.)				TACUBAYA, MEXICO (773 MB.)				TAMPA, FLA. (1017 MB.)				TATOOSH ISLAND, WASH. (1014 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	71	12.3	79	30	221	3.7	73	30	722	12.0	44	30	10	25.8	78	29	2,306	18.4	49	30	9	18.8	71	30	31	7.6	84
1,000	30	131	12.0	78	30	133			30	116			30	124	25.1	77	29	37			30	154	18.7	67	30	143	7.2	80
950	30	563	12.1	66	30	558	6.6	54	30	553			30	584	22.2	77	29	502			30	596	16.7	63	30	565	5.0	76
900	30	1,014	11.2	56	30	995	4.2	52	30	1,005	11.1	40	30	1,043	19.2	76	29	982			30	1,052	13.9	61	30	1,003	2.7	72
850	30	1,489	8.9	48	30	1,458	1.7	53	30	1,479	7.1	44	30	1,533	16.5	70	29	1,481			30	1,532	11.4	55	30	1,464		2
800	30	1,988	6.1	45	30	1,945		43	30	1,974	3.2	47	30	2,047	13.8	63	29	2,015			30	2,036	9.2	44	30	1,948		2.1
750	30	2,521	3.5	36	30	2,463	-2.3	45	30	2,495	-1.8	51	30	2,598	11.2	53	29	2,569	17.1	43	30	2,580	6.9	35	30	2,465	-4.6	59
700	30	3,071		33	30	3,005	-5.2	46	30	3,040	-4.3	49	30	3,163	8.7	43	29	3,151	12.6	47	30	3,132	4.0		30	2,998	-7.3	55
650	30	3,664	-3.4	30	30	3,588	-8.5	46	30	3,625	-8.0	49	30	3,781	5.6	37	29	3,773	7.5	55	30	3,736			30	3,579	-10.4	50
600	30	4,289	-6.7		30	4,200	-12.2	49	30	4,237	-11.9	46	30	4,424	2.6	36	29	4,422	2.1	65	30	4,368	-3.6		30	4,184	-13.8	50
550	30	4,963	-11.2		30	4,866	-16.3	47	30	4,904	-15.8	43	30	5,122	-1.7	36	29	5,122	-3.2	69	30	5,055	-7.8		30	4,846	-17.5	47
500	30	5,687	-16.4		30	5,571	-20.0	45	30	5,610	-20.3		30	5,874	-6.1		29	5,867	-8.1	66	30	5,783	-12.6		30	5,548	-22.0	50
450	30	6,473	-22.7		29	6,350	-26.4	45	30	6,385	-25.7		30	6,698	-11.5	30	28	6,692	-12.4	51	29	6,587	-18.1		30	6,320	-27.1	52
400	30	7,322	-29.4		29	7,187	-32.7	45	30	7,225	-32.0	38	30	7,585	-17.5		26	7,572	-18.1		29	7,449	-24.2		30	7,155	-32.8	54
350	30	8,261	-36.3		29	8,113	-39.9		30	8,154	-39.0		30	8,568	-25.0		24	8,555	-25.3		29	8,408	-31.4		30	8,081	-39.8	
300	30	9,314	-43.6		29	9,149	-47.2		30	9,189	-46.8		30	9,659	-33.5		21	9,656	-33.7		29	9,481	-39.7		30	9,117	-47.7	
250	30	10,519	-51.5		28	10,350	-53.7		28	10,373	-54.9		30	10,922	-43.1		21	10,908	-43.5		29	10,702	-49.1		28	10,303	-55.7	
200	30	11,742	-57.9		26	11,758	-56.3		27	11,785	-58.5		29	12,391	-54.3		19	12,371	-55.2		28	12,136	-58.2		24	11,691	-59.2	
175	30	12,782	-58.3		26	12,606	-56.0		27	12,626	-56.9		28	13,235	-60.5		18	13,214	-61.3		28	12,971	-60.5		24	12,530	-57.2	
150	30	13,753	-57.6		24	13,596	-54.3		26	13,610	-55.5		28	14,178	-66.9		15	14,152	-66.7		28	13,927	-61.9		23	13,517	-54.8	
125	30	14,901	-53.7		24	14,761	-55.2		26	14,771	-55.7		22	15,268	-71.5		8	15,247	-72.4		25	15,040	-64.1		22	14,683	-55.0	
100	30	16,294	-60.5		22	16,181	-55.6		25	16,195	-56.2		17	16,573	-75.4						21	16,395	-66.6		22	16,104	-56.3	
80	30	17,680	-60.5		21	17,594	-56.1		25	17,612	-55.9		13	17,861	-77.6						20	17,739	-67.3		21	17,525	-55.5	
60	29	19,473	-58.9		16	19,420	-56.1		21	19,438	-55.8		7	19,517	-70.8						17	19,482	-62.3		17	19,363	-55.8	
50	29	20,619	-57.2		15	20,585	-55.7		21	20,608	-55.4		7	20,618	-63.1						16	20,614	-59.4		16	20,528	-55.8	
40	28	22,036	-55.0		13	22,018	-55.2		19	22,035	-54.5		6	21,999	-60.3						14	22,020	-56.2		14	21,953	-55.2	
30	23	23,875	-52.3		8	23,874	-54.3		15	23,887	-53.4		5	23,799	-57.6						11	23,868	-51.7		11	23,793	-54.6	
20	11	26,490	-50.2						5	26,512	-51.4										5	26,390	-53.6					

Standard pressure surface (mb.)	VERACRUZ, MEXICO (1011 MB.)				WASHINGTON, D. C. (1005 MB.)				*CAMAGUEY, CUBA (1002 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	28	12	25.2	82	30	88	12.1	67	25	122	21.6	89
1,000	28	110	24.4	82	30	129	12.7	59	25	140	21.6	88
950	28	561	22.2	78	30	563	11.7	62	25	592	20.7	76
900	28	1,029	19.9	75	30	1,009	9.4	65	25	1,054	18.7	69
850	28	1,520	17.5	72	30	1,482	6.8	69	25	1,543	15.9	69
800	28	2,037	15.0	66	30	1,977	3.9	71	25	2,056	13.4	61
750	28	2,590	12.8	59	30	2,505		70	25	2,603	11.8	41
700	28	3,159	10.1	48	30	3,050	-2.4	67	25	3,172	8.7	29
650	27	3,778	6.2	50	30	3,637	-5.5	59	22	3,788	5.0	
600	27	4,423	1.6	58	30	4,259	-8.8	53	19	4,435	1.5	
550	27	5,118	-3.0	59	30	4,930	-12.9	46	17	5,129	-2.6	
500	26	5,868	-7.6	53	30	5,648	-17.7	37	15	5,881	-7.0	
450	26	6,687	-12.3	50	30	6,432	-23.1	36	14	6,697	-12.8	
400	26	7,574	-17.9	42	30	7,280	-29.4	37	12	7,579	-18.5	
350	25	8,560	-25.2		30	8,218	-36.6		10	8,572	-25.9	
300	24	9,662	-33.5		30	9,267	-44.4		9	9,669	-34.9	
250	24	10,917	-43.5		30	10,466	-51.9		8	10,913	-44.7	
200	23	12,382	-55.5		29	11,893	-58.4		5	12,376	-54.6	
175	21	13,224	-61.6		29	12,732	-58.0					
150	20	14,164	-67.3		28	13,706	-56.7					
125	16	15,248	-72.1		28	14,858	-57.7					
100	12	16,561	-73.7		25	16,254	-58.1					
80	9	17,862	-73.7		23	17,651	-58.7					
60					21	19,457	-57.3					
50					19	20,614	-56.4					
40					17	22,030	-55.7					
30					13	23,882	-53.9					

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Note: All observations scheduled at 0300, G.C.T. except at Mazatlan, Merida and Veracruz, where they are taken near 0200, G.C.T., "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and

expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.



# PILOT BALLOON DATA

Average monthly resultant winds

Table 21

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Altitude (meters) m.s.l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N.Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S.C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)			Ely, Nev. (7,910 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed			
Surface-----	30	163	1.0	30	232	1.2	30	273	0.7	30	209	1.6	30	27	0.2	30	118	6.4	27	233	2.1	28	310	2.0	30	234	1.9	26	298	2.9	30	218	1.6	30	228	0.9
500-----	30	178	2.2	30	232	1.2	30	273	0.7	30	209	1.6	30	27	0.2	30	118	6.4	27	233	2.1	28	310	2.0	30	234	1.9	26	298	2.9	30	218	1.6	30	228	0.9
1,000-----	30	178	2.2	30	232	1.2	30	273	0.7	30	209	1.6	30	27	0.2	30	118	6.4	27	233	2.1	28	310	2.0	30	234	1.9	26	298	2.9	30	218	1.6	30	228	0.9
1,500-----	30	208	2.4	30	232	1.2	30	251	1.3	30	201	2.3	30	132	1.5	26	132	3.7	24	283	4.4	26	282	3.7	28	241	4.5	22	288	4.3	30	221	3.0	30	231	.9
2,000-----	26	220	2.5	30	239	2.3	30	238	1.5	29	252	1.6	29	179	1.3	17	238	2.0	19	314	6.3	20	286	9.6	23	267	6.6	18	290	3.6	30	217	3.9	30	231	.9
2,500-----	26	249	3.8	30	234	2.7	28	243	1.8	29	289	2.4	28	177	1.9	15	238	3.5	15	330	7.9	17	302	10.5	21	287	7.2	15	327	6.2	30	221	4.7	29	205	.7
3,000-----	24	263	6.1	28	230	3.3	24	242	3.3	27	282	3.4	28	208	2.6	14	241	6.0	14	338	8.2	13	310	11.5	18	297	7.4	15	323	6.5	29	225	5.4	26	205	.7
4,000-----	23	273	9.3	26	242	5.5	21	262	3.7	26	269	4.5	25	234	4.1	13	262	8.9	12	335	13.0	13	307	14.3	16	291	9.2	13	338	8.7	27	241	7.9	21	221	1.6
5,000-----	17	283	10.8	24	258	7.5	18	248	4.0	25	274	5.4	19	238	3.2	11	269	11.6				12	295	17.9	15	288	10.1	12	347	9.5	24	258	10.6	19	257	3.2
6,000-----	16	277	11.8	21	264	10.5	16	284	4.5	24	265	6.2	16	279	3.8							11	286	21.3	13	296	11.1	12	346	9.5	22	263	11.5	17	269	4.9
8,000-----	10	278	16.6	18	265	13.7				18	291	5.8	14	298	7.8															20	261	14.6	13	283	8.8	
10,000-----				11	266	16.5																								16	270	19.9	12	293	13.4	

Altitude (meters) m.s.l.	Grand Junction, Colo. (1,475 m.)			Greensboro, N.C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed			
Surface-----	30	275	1.7	25	261	2.6	30	283	1.6	30	131	1.6	25	321	2.3	29	315	0.4	30	323	1.8	30	112	2.3	30	266	1.5	28	299	2.2	30	260	3.6	26	133	0.9
500-----	30	275	1.7	25	261	2.6	30	283	1.6	30	131	1.6	25	321	2.3	29	315	0.4	30	323	1.8	30	112	2.3	30	266	1.5	28	299	2.2	30	260	3.6	26	133	0.9
1,000-----	30	275	1.7	25	261	2.6	30	283	1.6	30	131	1.6	25	321	2.3	29	315	0.4	30	323	1.8	30	112	2.3	30	266	1.5	28	299	2.2	30	260	3.6	26	133	0.9
1,500-----	30	277	1.7	22	270	3.9	28	239	3.4	27	267	4.9	23	311	4.2	21	248	3.1	29	181	1.7	30	288	1.9	26	310	3.4	24	282	3.6	22	156	.6	22	210	1.9
2,000-----	29	267	2.3	20	297	5.8	27	235	4.1	25	274	5.7	20	318	5.2	20	256	4.7	28	182	2.0	28	290	4.4	25	319	4.2	21	280	4.5	22	234	.4	19	233	3.0
2,500-----	29	265	2.0	20	301	6.8	26	236	5.0	22	275	6.7	17	322	5.3	20	267	6.2	26	193	3.3	25	282	5.4	23	315	5.9	17	304	4.3	21	263	.6	18	265	4.3
3,000-----	28	263	2.1	20	297	8.3	26	244	5.6	21	282	8.0	17	324	7.8	20	275	7.1	24	202	3.9	23	281	7.0	19	319	7.7	16	326	4.5	20	326	1.4	18	276	5.4
4,000-----	25	233	3.0	16	310	9.2	22	250	7.6	16	288	5.3	12	343	7.0	17	288	8.2	21	233	4.4	18	284	6.9	16	315	11.1	16	318	7.9	19	326	4.5	15	281	7.7
5,000-----	21	273	3.9	15	298	11.5	21	249	8.6	14	290	6.8	12	341	8.8	13	286	11.2	18	243	5.5	17	274	9.0	13	299	12.6	15	316	9.8	18	320	5.2	14	299	10.2
6,000-----	16	301	5.3	15	296	12.6	19	268	9.3	13	293	8.5	10	343	12.2	11	299	12.0	15	265	5.8	15	269	11.1				13	314	12.1	18	324	8.6	14	295	13.5
8,000-----	15	293	9.3	11	307	14.4	14	287	10.0	12	295	13.4																	13	316	17.6			11	297	16.7
10,000-----	13	281	11.2																																	

Altitude (meters) m.s.l.	Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)			Spokane, Wash. (725 m.)			Washington, D.C. (24 m.)			
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	
Surface-----	17	153	0.8	30	182	0.8	30	83	1.4	30	274	1.4	27	294	1.3	27	118	2.1	23	246	3.7	29	296	3.7	29	244	2.4	30	215	2.7	25	282	1.0	
500-----	17	191	.6	30	191	.9	30	83	1.4	30	274	1.4	27	294	1.3	27	118	2.1	23	246	3.7	29	296	3.7	29	244	2.4	30	215	2.7	25	282	1.0	
1,000-----	16	197	1.2	30	212	1.6	30	86	1.4	27	294	1.3	27	292	2.1	27	95	1.6	20	208	1.0	28	298	5.1	29	215	4.4	30	201	3.5	25	273	3.6	
1,500-----	14	258	1.8	29	202	2.9	30	54	.6	22	195	.7	22	285	2.5	23	156	.5	10	270	.5	23	310	4.9	26	206	6.1	30	206	4.1	21	263	5.1	
2,000-----	13	264	3.7	28	189	3.3	30	328	.9	20	261	.7	20	296	2.5	22	251	2.7	16	261	.8	22	312	6.4	24	201	7.8	27	211	5.2	18	268	7.8	
2,500-----	12	259	4.4	27	182	3.5	28	269	1.7	19	294	1.3	30	314	2.7	19	281	4.3	15	176	1.1	22	317	8.3	20	208	7.5	27	228	6.0	15	282	9.5	
3,000-----	12	267	5.6	27	185	3.7	27	276	2.3	18	322	2.7	19	306	3.8	19	286	6.0	12	231	1.6	20	324	10.0	17	321	7.8	24	233	7.0	14	294	9.6	
4,000-----	10	291	6.3	24	196	4.6	22	297	3.6	18	331	4.6	18	307	5.0	18	291	9.4	11	259	3.4	19	325	11.7	16	241	8.7	19	237	8.3	13	282	12.9	
5,000-----				22	234	4.7	20	296	5.7	17	319	6.5	14	327	6.9	16	288	13.3				16	333	13.2	16	250	9.5	18	255	9.5	12	277	15.3	
6,000-----				21	257	6.3	18	294	6.3	15	322	7.0	10	338	10.0	14	281	14.2				14	336	12.6	15	260	11.2	17	257	11.8				
8,000-----				18	261	8.6	10	321	8.1	13	345	9.6																						
10,000-----				12	259	12.2				11	347	8.2																						

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.;



## Average monthly resultant winds

Table 22

APRIL 1952

See note following table 3 in the January 1950 issue of the CLIMATOLOGICAL DATA, National Summary.



# SOLAR RADIATION DATA

Table 30--Solar radiation intensities, tabulated in langleys per minute.

APRIL 1952

Date	Sun's zenith distance								Vapor pressure, E.S.T.		Date	Sun's zenith distance								Vapor pressure, E.S.T.									
	A. M.				0.0°	P. M.				7.30 a. m.		1.30 p. m.	A. M.				0.0°	P. M.				7.30 a. m.	1.30 p. m.						
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°				78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°								
BOSTON, MASS.														TABLE MOUNTAIN, CALIF.															
Air mass										Air mass																			
4.96 3.96 2.97 1.98 *0.99 1.98 2.97 3.96 4.96										3.76 3.01 2.26 1.51 *0.75 1.51 2.26 3.01 3.76																			
April 4----	----	----	----	0.96	----	1.20	----	----	----	Mb	Mb	April 4----	----	----	----	1.39	----	----	----	----	----	Mb	Mb						
16----	----	----	----	----	----	1.20	----	----	----			16----	----	----	----	1.34	----	----	----	----	----								
17----	----	----	----	1.13	----	----	----	----	----			17----	----	----	----	1.29	----	----	----	----	----								
Aver-ages	----	----	----	1.05	----	1.20	----	----	----			Aver-ages	----	----	----	1.33	----	----	----	----	----								
Depar- tures	----	----	----	-.05	----	+.21	----	----	----			Depar- tures	----	----	----	-.08	----	----	----	----	----								
RATIO BOSTON/BLUE HILL ON COMPARABLE DATES														MADISON, WIS.															
----														Air mass															
0.91														4.81 3.84 2.88 1.92 *0.96 1.92 2.88 3.84 4.81															
BLUE HILL, MASS.														April 15----															
Air mass										4.86 3.89 2.92 1.94 *0.97 1.94 2.92 3.89 4.86										Mb Mb									
4.86 3.89 2.92 1.94 *0.97 1.94 2.92 3.89 4.86										Mb Mb										0.61 0.71 0.76 0.94 1.29									
April 4----	0.69	0.79	0.87	----	----	----	----	----	----	Mb	Mb	15----	0.61	0.71	0.76	0.94	1.29	----	----	----	----	----	----						
10----	----	----	.72	1.00	----	1.09	0.91	0.80	0.70			16----	.80	.94	1.04	1.19	1.37	1.08	----	----	----	----	----						
15----	.68	.96	1.12	1.26	----	1.28	----	----	----			17----	.60	.74	.83	.99	----	----	----	----	----	----	----						
17----	.79	.89	1.07	1.24	----	----	----	----	----			18----	.49	.60	.74	.84	1.27	----	----	----	----	----	----						
18----	.66	.74	.81	.83	----	----	----	----	----			19----	.45	.59	.70	.80	1.22	----	----	----	----	----	----						
19----	----	----	----	1.05	----	----	----	----	----			25----	.58	.69	.83	.98	1.20	----	----	----	----	----	----						
21----	.89	.96	1.09	1.26	----	1.28	1.11	.93	.85			26----	.45	.55	.70	.84	1.18	----	----	----	----	----	----						
30----	.74	.93	1.09	1.29	----	1.35	1.18	1.09	1.02			28----	.60	.68	.77	.94	1.22	.88	----	----	----	----	----						
Aver-ages	.74	.88	.97	1.13	----	1.19	1.04	.92	.82			29----	.43	.52	.65	.88	1.17	----	----	----	----	----	----						
Depar- tures	-.04	.00	-.05	-.05	----	+.05	+.09	+.10	+.13			30----	.41	.50	.61	.77	1.14	.84	----	----	----	----	----						
LINCOLN, NEBR.														ALBUQUERQUE, N. M.															
Air mass										4.77 3.81 2.86 1.91 *0.95 1.91 2.86 3.81 4.77										Air mass									
4.77 3.81 2.86 1.91 *0.95 1.91 2.86 3.81 4.77										Mb Mb										4.08 3.26 2.44 1.63 *0.815 1.63 2.44 3.26 4.08									
April 1----	----	----	1.11	1.24	1.37	----	----	----	----	Mb	Mb	RECORDER INOPERATIVE																	
2----	----	----	1.14	1.27	1.42	1.18	1.01	.79	0.67			TACUBAYA, D. F., MEXICO																	
7----	----	----	.77	.96	1.26	1.01	.79	0.67	----			Air mass																	
14----	----	----	.88	1.09	1.35	1.07	.90	.75	0.66			3.83 3.07 2.31 1.53 *0.77 1.53 2.31 3.07 3.83																	
15----	----	----	.83	1.03	1.31	----	----	----	----			Mb Mb																	
24----	----	----	----	1.32	1.09	.94	.79	.70	----			NO DATA DURING APRIL 1952																	
26----	----	----	1.06	1.32	1.08	.92	.79	.71	----																				
28----	----	----	1.03	1.28	.99	.82	.69	.58	----																				
Aver-ages	----	----	.95	1.10	1.33	1.07	.90	.74	.66																				
Depar- tures	----	----	-.02	-.07	-.10	-.09	-.06	-.10	-.05																				
* Extrapolated																													
† Forest fire smoke in vicinity																													

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface.  
An explanation of Tables 30 and 31 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given

in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.



# SOLAR RADIATION DATA

APRIL 1952

Table 31a.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

Date-----	1	2	3	4	5	6	7	Aver- age	8	9	10	11	12	13	14	Aver- age	15	16	17	18	19	20	21	Aver- age
Langleys-----	328	34	175	368	52	168	238	195	299	176	398	345	393	140	90	263	90	401	384	329	304	365	350	318
Date-----	22	23	24	25	26	27	28	Aver- age																
Langleys-----	345	118	377	65	58	116	83	166																

Table 31b.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during the month

Date-----	1	2	3	4	5	6	7	Aver-	8	9	10	11	12	13	14	Aver-	15	16	17	18	19	20	21	Aver-
Langleys-----	76	12	61	56	27	87	78	age	69	85	60	115	110	114	55	age	86	92	92	90	115	95	105	age
								57								87							97	
Date-----	22	23	24	25	26	27	28	Aver-																
Langleys-----	109	81	107	51	33	83	52	age																
								74																

Table 31c.-Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

Date-----	1	2	3	4	5	6	7	Aver-	8	9	10	11	12	13	14	Aver-	15	16	17	18	19	20	21	Aver-	
Langleys-----	173	45	121	134	43	164	167	age	209	171	120	179	138	168	91	age	154	141	73	116	142	151	81	56	age
								121								154								109	
Date-----	22	23	24	25	26	27	28	Aver-																	
Langleys-----	170	156	164	99	78	161	96	age																	
								132																	

Note.—Langley is the unit used to denote one gram calorie per square centimeter.



# SOLAR RADIATION DATA

Table 33--Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyes.

APRIL 1952

1952	Aklavik, MacKenzie	Albuquerque, N.Mex.	Apalachicola, Fla.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Big Spring, Tex.	Blue Hill, Mass.	Boston, Mass.	Brownsville, Tex.	Charleston, S.C.	Cleveland, Ohio	Columbia, Mo.	Columbus, Ohio	Davis, Calif.	E. Lansing, Mich.	E. Wareham, Mass.	Edmonton, Alberta	El Paso, Tex.	Fairbanks, Alaska	Fort Worth, Tex.	Fresno, Calif.	Grand Junction, Colo.	Grand Lake, Colo.	Greensboro, N.C.	Griffin, Ga.	Hatteras, N.C.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N.Y.	Keflavik, Iceland	Lake Charles, La.	Lander, Wyo.	Las Vegas, Nev.
April 1-----	305 (688)	311	---	---	212	481	654	384	403	660	141	---	613	230	(516)	201	299	505	680	(405)	680	578	661	(420)	---	387	215	521	545	120	171	608	589	
April 2-----	405 616 627	677	---	---	266	506	615	45	48	529	605	---	667	258	580	110	78	336	672	(404)	680	578	661	(420)	---	699	(601)	195	664	514	202	699	598	
April 3-----	389 (688)	683	---	---	219	466	542	194	305	617	666	---	154	593	564	175	280	409	711	(399)	186	605	671	444	---	691	603	222	653	361	108	548	637	
April 4-----	402 (688)	154	174	---	348	499	622	462	375	(517)	525	---	132	103	560	175	280	409	711	(399)	186	605	671	444	---	691	603	222	653	361	108	548	637	
April 5-----	376 680 637	144	---	---	357	328	727	43	65	430	671	---	346	55	532	173	102	455	681	(425)	709	583	681	672	---	172	556	114	613	208	455	730	---	
April 6-----	435 585 685	---	---	---	249	279	582	341	311	709	694	---	621	180	544	173	102	455	681	(425)	709	583	681	672	---	172	556	114	613	208	455	730	---	
April 7-----	417 666 696	697	---	---	266	361	652	339	390	718	698	---	659	278	270	540	279	425	697	(404)	718	192	615	396	---	728	700	679	602	49	266	677	606	
Averages-----	390 (659)	542	423	---	274	417	628	243	285	(560)	571	---	456	242	514	208	284	417	(681)	---	830	546	624	(581)	---	488	(583)	297	633	236	245	665	624	
Departures-----	---	+83	+13	-36	---	+46	---	-127	-33	+42	+39	---	+93	-54	+32	-72	---	+33	---	---	+85	+40	---	+55	---	-32	-62	-40	+40	-52	-2	+149	+56	
April 8-----	328 (526)	647	---	---	318	178	629	405	374	617	678	---	607	380	549	539	421	542	654	(396)	698	416	477	496	---	541	699	617	659	129	324	716	363	
April 9-----	439 562 652	---	---	---	371	353	423	246	299	258	573	---	270	578	397	422	399	564	573	(241)	157	399	692	582	---	640	665	547	517	146	538	708	571	
April 10-----	221 446 580	---	---	---	447	405	639	566	540	344	634	---	694	(181)	486	58	515	470	491	(253)	750	208	284	476	---	510	731	96	483	586	400	216	605	
April 11-----	353 591 654	572	---	---	460	533	202	562	491	478	464	---	106	(502)	393	470	549	371	337	---	153	379	504	436	---	564	600	488	627	454	208	271	476	
April 12-----	467 (590)	625	534	---	443	239	462	612	534	686	459	---	81	164	331	61	431	493	877	---	537	545	523	476	---	555	364	181	623	310	365	186	483	
April 13-----	475 686 505	508	450	---	450	479	687	262	250	710	(175)	---	154	201	251	90	233	456	670	(313)	706	215	701	514	---	518	397	173	653	50	333	706	657	
April 14-----	322 706 714	185	---	---	499	550	762	153	138	700	(641)	---	239	168	526	30	112	495	728	(454)	730	678	628	660	---	180	659	103	675	355	500	730	632	
Averages-----	372 (587)	625	450	---	427	391	542	401	375	542	(518)	---	353	(311)	419	240	380	485	590	---	536	405	544	534	---	501	588	315	605	343	325	483	553	
Departures-----	---	-20	+44	-91	---	+31	---	+28	+31	+22	-57	---	-37	-32	-124	-75	-15	---	-74	---	+23	-145	---	+22	---	-61	+19	-75	-20	+28	-29	-16	-57	
April 15-----	356 699 719	---	---	---	502	386	630	172	206	597	(635)	---	715	746	679	491	157	550	720	(492)	796	680	662	536	---	164	576	147	701	57	320	716	404	
April 16-----	280 697 634	677	---	---	521	386	607	649	597	432	(643)	---	703	686	636	535	382	597	680	(323)	601	676	709	413	---	669	433	660	700	686	162	720	205	
April 17-----	442 634 685	695	---	---	504	471	148	633	547	630	642	---	425	580	635	519	458	381	542	(500)	342	673	719	687	---	700	713	637	685	643	227	661	700	
April 18-----	486 571 677	---	---	---	516	515	521	547	512	370	642	---	447	580	635	519	458	381	542	(500)	342	673	719	687	---	700	713	637	685	643	227	661	700	
April 19-----	541 670 674	---	---	---	(528)	517	462	529	494	169	658	---	521	529	600	647	456	479	395	365	(534)	322	659	714	---	634	682	704	559	691	628	90	489	734
April 20-----	530 331 388	---	---	---	517	588	578	620	596	720	670	---	594	535	546	678	495	507	133	710	(442)	205	684	320	(678)	---	636	682	697	607	641	346	431	390
April 21-----	410 498 683	---	---	---	431	493	667	719	653	598	676	---	486	590	665	435	634	551	714	(362)	102	711	376	360	---	636	682	697	607	641	346	431	390	
Averages-----	435 586 646	---	---	---	(503)	479	516	558	515	500	(636)	---	553	527	644	496	483	478	622	---	369	675	609	(575)	---	605	632	527	671	557	323	550	476	
Departures-----	---	-47	+61	---	---	+68	---	+147	+110	-11	470	---	+68	+100	+68	+113	+62	---	-58	---	-110	+82	---	-16	+53	---	44	+34	+69	+35	+217	+10	+54	
April 22-----	371 560 638	---	---	---	496	552	648	539	525	562	(699)	---	373	447	650	154	480	512	743	538	262	698	657	503	---	651	672	689	285	699	286	563	173	722
April 23-----	507 697 601	506	394	529	724	210	248	259	(699)	75	373	64	584	148	227	529	737	(397)	784	637	738	---	---	---	---	599	515	726	54	653	165	518	358	754
April 24-----	477 724 544	205	452	608	712	574	538	662	364	213	404	106	501	499	514	516	694	(408)	632	572	732	---	---	---	---	139	244	451	192	536	628	102	748	762
April 25-----	468 619 652	---	---	---	(425)	612	748	113	137	349	350	467	731	164	102	592	96	525	417	(474)	(723)	60	460	742	---	04	496	487	636	390	145	224	(545)	
April 26-----	550 725 603	277	410	591	726	84	96	755	233	642	666	562	306	603	329	291	756	---	796	625	693	---	---	---	---	69	488	457	690	596	515	358	725	
April 27-----	233 394 686	344	583	604	753	206	201	657	190	686	702	673	489	576	124	578	726	(499)	787	353	631	---	---	---	---	132	240	(257)	683	462	414	296	747	
April 28-----	286 680 702	---	461	678	548	127	93	490	306	599	707	611	465	575	140	169	665	(306)	760	588	287	---	---	---	---	287	713	738	642	580	296	738	692	
Averages-----	413 628 604	333	(450)	596	694	265	261	533	(387)	434	566	375	442	450	273	446	677	---	(685)	510	600	---	---	---	---	282	481	545	455	559	373	(576)	745	
Departures-----	---	-30	+2	---	---	+153	---	-171	-110	00	-158	---	+21	-101	-100	+82	-154	---	-19	---	-116	-67	---	---	---	-172	-77	-26	+1	-94	-21	+70	+114	

Accumulated Departures January 1 to April 28, 1952

---	-315	-1729	-861	---	---	---	---	-3696	-455	-413	-1960	---	-42170	-665	-2332	-434	---	---	-2156	---	-42856	-98	---	---	-581	---	-1246	---	-1358	-2695	-1848	---	-1316	---	-3976
-----	------	-------	------	-----	-----	-----	-----	-------	------	------	-------	-----	--------	------	-------	------	-----	-----	-------	-----	--------	-----	-----	-----	------	-----	-------	-----	-------	-------	-------	-----	-------	-----	-------

Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.



# SOLAR RADIATION DATA

Table 33—Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyes—Continued

APRIL 1952

	Los Angeles, Calif. (WBAS)	Madison, Wis.	Medford, Oreg.	Miami, Fla.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Head, Wash.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Ottawa, Ontario	Phoenix, Ariz.	Put-In-Bay, Ohio	Rapid City, S. Dak.	Riverside, Calif.	Salt Lake City, Utah	San Antonio, Tex.	Santa Maria, Calif.	Sault Ste. Marie, Mich.	Saville, N. Y.	Schenectady, N. Y.	Seabrook, N. J.	Seattle, Wash. (U. of W.)	Seattle, Wash. (WBAS)	Spokane, Wash.	State College, Pa.	Stillwater, Okla.	Toronto, Ontario	Upton, N. Y.	Wake Island, Pacific Area	Washington, D. C. (WBAC)	Washington, D. C. (Amer. U.)	Winnipeg, Manitoba		
1952																																			
April 1-----	558	529	473	(605)	335	407	308	---	301	---	82	660	334	473	547	558	---	602	104	353	143	318	299	363	---	124	---	29	(336)	---	392	380	92		
April 2-----	320	194	(502)	594	644	350	217	401	566	694	473	647	335	526	556	---	---	637	253	205	369	447	341	217	---	287	---	315	196	---	567	483	219		
April 3-----	635	297	630	654	525	350	459	---	623	214	380	(667)	265	189	638	---	---	653	452	396	374	530	217	341	---	282	---	401	198	403	---	656	548	177	
April 4-----	645	189	622	658	241	561	411	---	257	---	287	681	102	504	642	---	---	649	423	558	447	453	506	---	---	151	---	252	558	---	342	336	260		
April 5-----	495	262	399	482	180	101	48	372	50	---	63	630	54	540	604	---	---	610	129	71	36	268	450	---	---	151	---	483	521	---	332	308	521		
April 6-----	430	617	275	348	432	508	235	502	269	712	96	634	71	541	521	---	---	417	538	413	78	292	171	177	---	140	---	601	103	370	---	230	204	556	
April 7-----	145	607	561	555	676	292	171	661	677	648	256	673	552	411	248	---	---	314	601	223	183	179	521	557	---	113	---	555	162	338	---	416	306	521	
Averages-----	461	384	(495)	(556)	433	332	264	484	400	567	234	(656)	245	455	537	---	---	555	357	317	233	355	365	376	---	---	---	480	153	(330)	---	419	367	335	
Departures-----	---	+13	+6	+24	+23	-60	-81	+100	-10	+28	---	+53	-107	+3	+80	---	---	+35	-3	-63	-73	-48	-15	---	---	---	-157	---	+30	-151	-61	---	+26	-9	---
April 8-----	497	524	621	664	602	251	239	571	638	665	388	679	622	176	503	---	---	680	622	354	230	402	517	537	---	---	---	349	543	381	454	---	339	347	278
April 9-----	266	225	644	732	636	392	284	647	623	202	617	687	587	580	538	---	---	69	98	356	537	464	555	585	---	---	---	558	78	485	343	---	596	591	616
April 10-----	250	449	661	722	279	602	556	637	414	---	445	572	102	529	172	318	---	685	295	458	645	515	592	551	580	---	---	482	633	267	621	---	557	587	610
April 11-----	626	265	570	619	283	600	595	346	618	149	685	426	547	446	226	292	---	111	346	632	590	538	542	171	240	---	---	505	97	527	576	---	594	602	486
April 12-----	335	55	456	637	351	459	197	325	360	276	669	692	93	444	384	616	694	149	469	324	418	246	432	461	614	---	---	122	99	313	368	---	266	291	522
April 13-----	428	41	275	528	307	227	121	226	454	350	152	683	111	474	501	625	672	400	88	135	92	186	125	144	379	---	---	30	223	20	148	---	87	109	587
April 14-----	701	346	593	(545)	129	140	399	502	101	761	96	696	33	576	651	98	692	691	398	160	86	390	462	582	162	305	638	84	(235)	---	430	420	565		
Averages-----	443	272	546	(635)	369	382	341	465	458	401	436	634	299	461	425	---	---	376	395	366	345	403	402	447	---	---	---	336	330	297	(392)	---	410	418	523
Departures-----	---	-127	+3	+89	-13	-28	-13	+50	+22	-88	---	+42	-65	-7	-57	-110	---	---	-144	+10	-42	+6	-25	-39	---	---	---	---	-37	-95	-38	---	-6	+18	---
April 15-----	698	652	609	759	213	153	61	634	55	706	623	699	241	371	674	162	707	689	648	75	331	41	524	599	611	56	375	372	(216)	---	294	261	615		
April 16-----	700	639	515	768	691	632	593	534	662	659	692	710	647	325	682	---	---	672	686	618	690	582	543	420	490	644	394	394	599	681	---	550	549	601	
April 17-----	309	586	659	590	674	661	523	647	685	503	580	705	619	571	672	---	---	622	693	558	598	453	620	520	603	635	570	(201)	552	636	---	640	627	570	
April 18-----	309	542	589	595	599	563	600	255	575	222	640	705	619	581	661	---	---	630	663	575	549	605	337	377	602	489	208	405	564	723	557	543	485		
April 19-----	391	533	616	622	624	519	497	521	604	---	327	613	560	588	176	391	---	671	675	517	569	361	562	559	583	---	---	47	550	559	643	599	522	588	
April 20-----	632	542	640	509	560	561	555	699	630	132	708	333	559	544	404	233	---	438	702	649	575	562	559	583	---	---	---	571	563	650	557	569	557		
April 21-----	479	260	645	601	544	693	645	---	595	349	709	231	564	519	503	401	---	437	500	499	681	598	631	573	630	691	601	500	604	634	606	620	555	595	
Averages-----	550	536	610	635	558	547	505	550	544	396	611	571	544	491	539	423	---	608	527	534	491	504	443	503	---	---	---	466	288	508	(550)	656	544	518	573
Departures-----	---	+126	+35	+50	+92	+114	+113	+85	+89	-98	---	-58	+104	-28	+33	-56	---	---	+108	+127	+111	+104	+74	-12	---	---	---	---	---	---	---	---	---	---	
April 22-----	636	131	592	612	508	548	454	690	636	---	414	684	280	559	646	662	245	326	319	538	339	536	498	525	588	368	376	453	527	636	466	414	675		
April 23-----	444	274	601	554	201	317	199	634	387	---	(500)	718	88	525	671	647	---	713	445	666	295	218	385	565	614	665	78	163	312	302	718	480	403	607	
April 24-----	455	525	530	663	182	572	428	441	129	290	720	627	308	588	565	653	691	441	706	425	574	147	406	465	612	144	49	664	440	712	64	50	636		
April 25-----	443	592	538	534	185	77	50	510	263	---	680	695	573	589	143	555	776	344	(677)	51	108	(221)	374	469	657	48	672	599	60	696	67	51	556		
April 26-----	466	567	538	110	276	287	79	472	121	788	722	715	704	573	528	623	679	686	567	96	368	98	346	392	588	177	665	648	119	755	62	66	600		
April 27-----	618	640	566	649	146	83	302	130	781	631	679	586	433	(682)	746	590	583	90	422	94	152	150	562	160	142	103	720	58	47	542	47	542	47		
April 28-----	119	625	604	781	676	140	127	589	651	779	477	178	631	577	96	603	---	514	734	640	102	74	114	547	489	574	412	648	534	105	733	107	84	588	
Averages-----	440	479	567	558	384	298	203	520	320	660	(598)	561	466	571	440	(632)	623	509	(594)	228	300	(228)	412	443	606	198	389	545	237	710	186	159	601		
Departures-----	---	+44	+40	-87	-60	-153	-230	+55	-133	+135	---	-74	+40	+33	-25	+134	---	---	+59	-180	-131	-175	-36	---	---	---	---	---	---	---	---	---	---	---	

Accumulated Departures January 1 to April 28, 1952

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



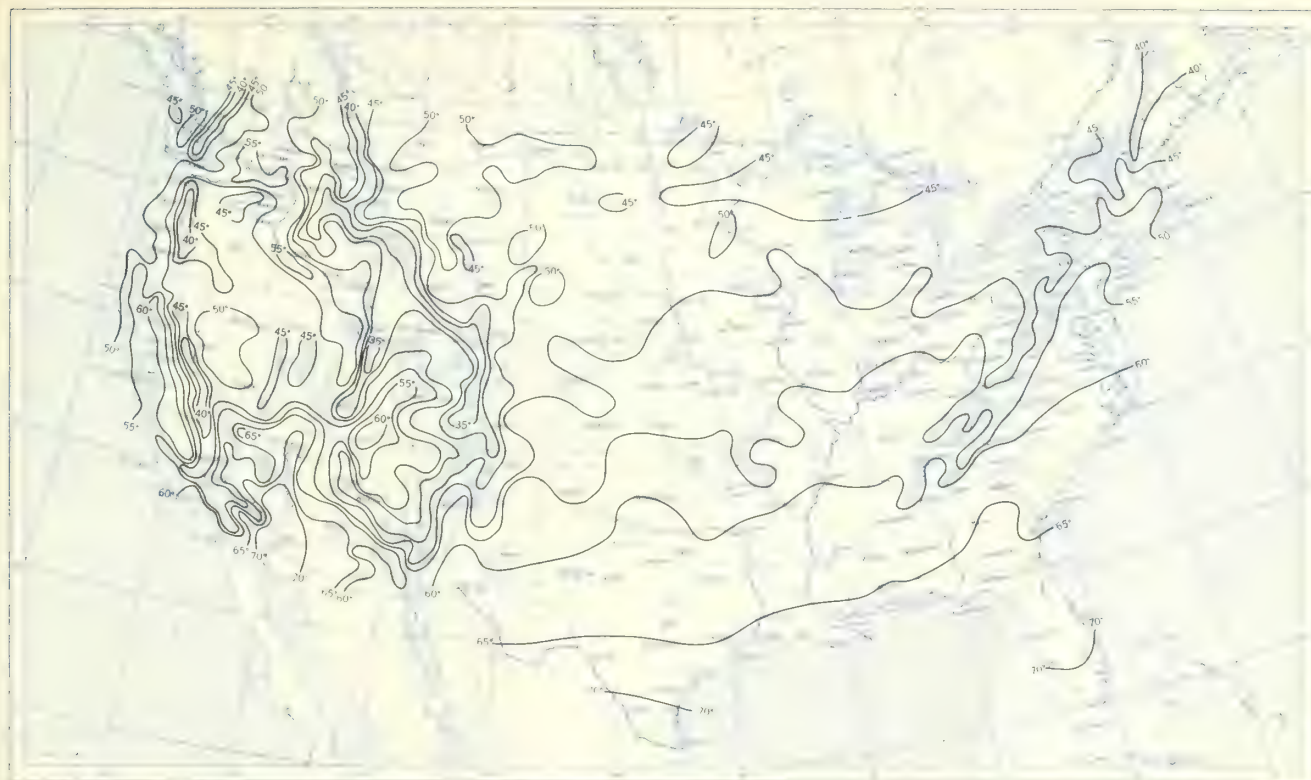




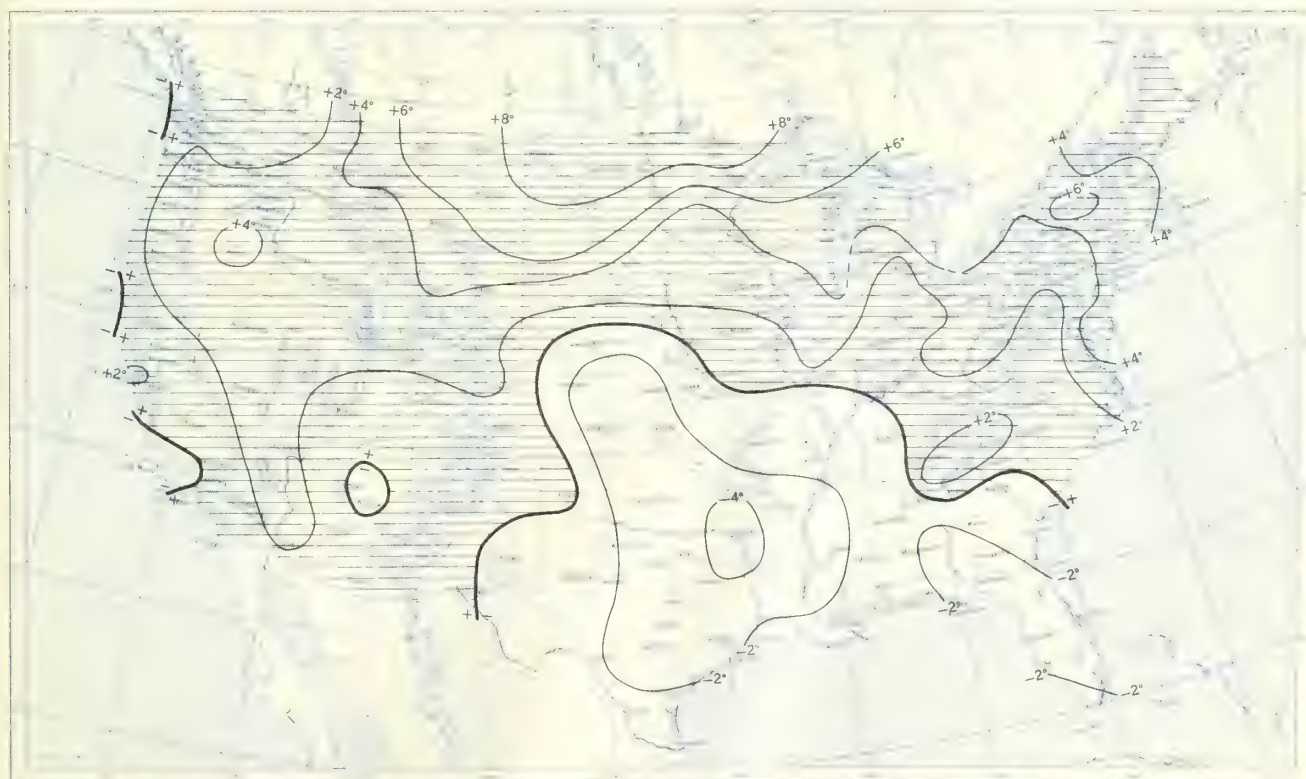




Chart I. A. Average Temperature ( $^{\circ}\text{F.}$ ) at Surface, April 1952.



B. Departure of Average Temperature from Normal ( $^{\circ}\text{F.}$ ), April 1952.

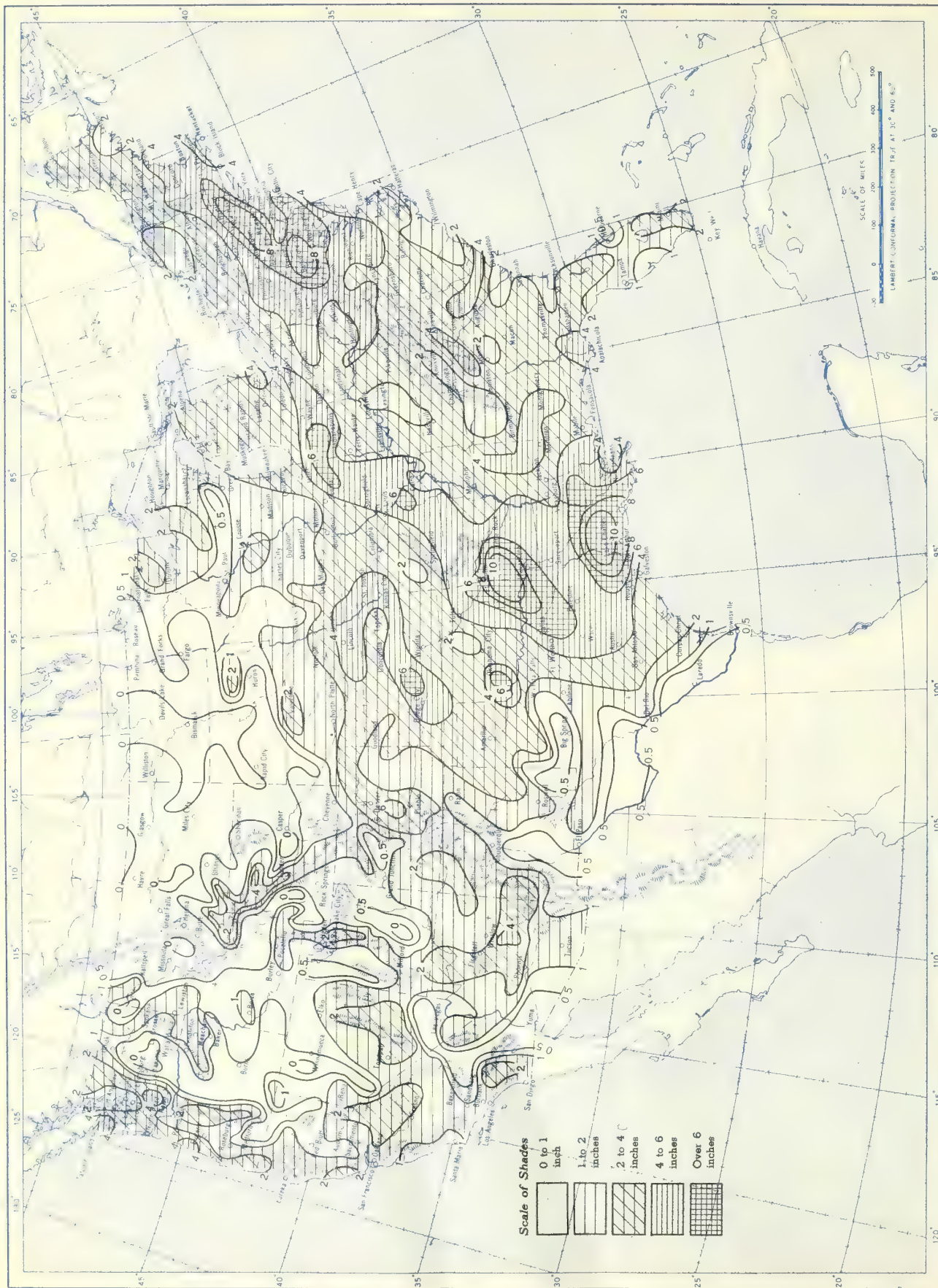


A. Based on reports from 800 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Normal average monthly temperatures are computed for Weather Bureau stations having at least 10 years of record.



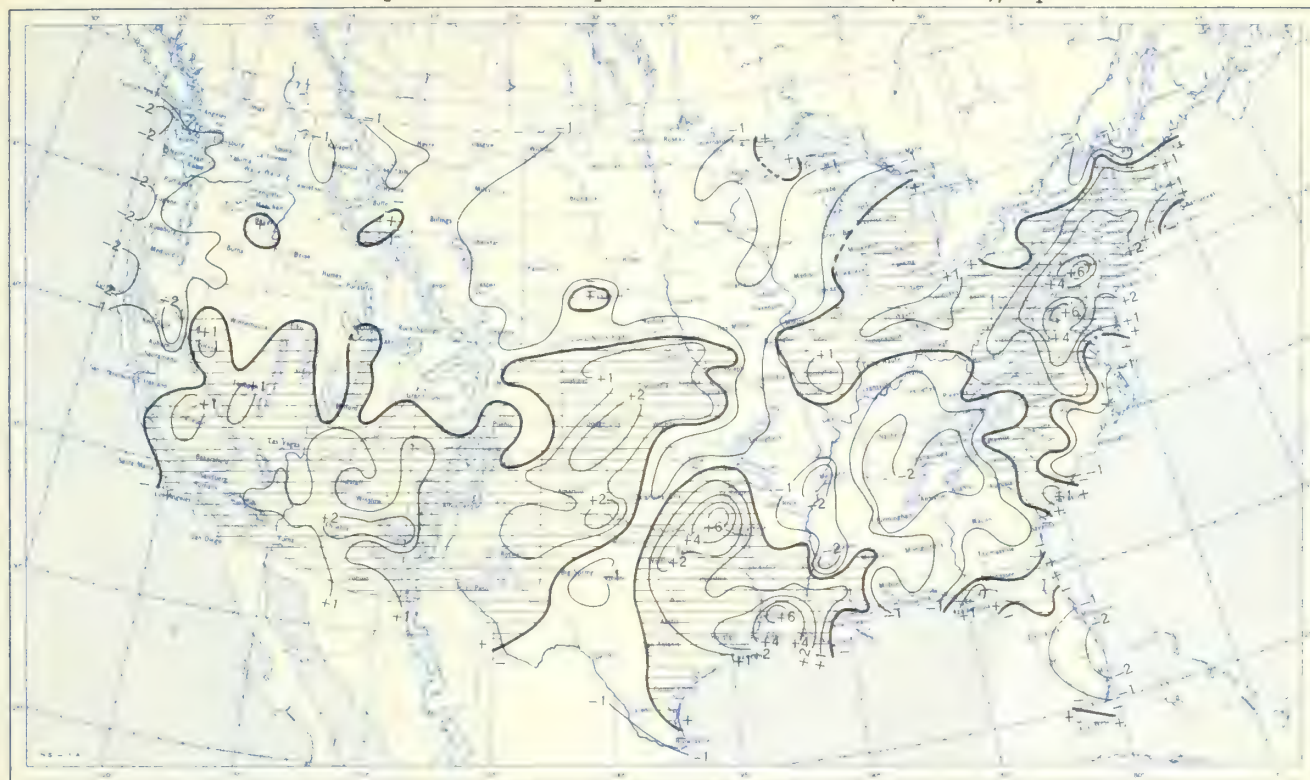
Chart II. Total Precipitation (Inches), April 1952.



Based on daily precipitation records at 800 Weather Bureau and cooperative stations.



Chart III. A. Departure of Precipitation from Normal (Inches), April 1952.



B. Percentage of Normal Precipitation, April 1952.



Normal monthly precipitation amounts are computed for stations having at least 10 years of record.



Chart IV. Total Snowfall (Inches), April 1952.



This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.



Chart V. A. Percentage of Normal Snowfall, April 1952.



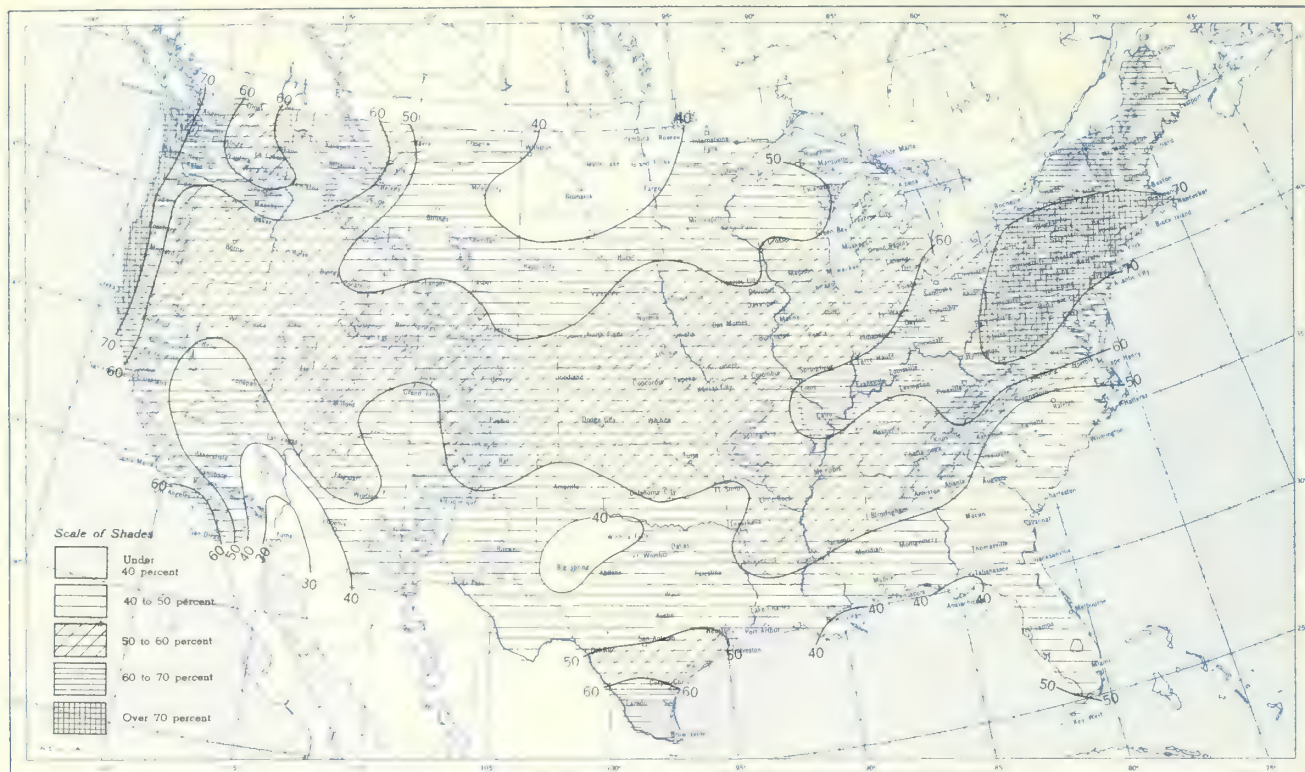
B. Depth of Snow on Ground (Inches), 7:30 a. m. E. S. T., April 29, 1952.



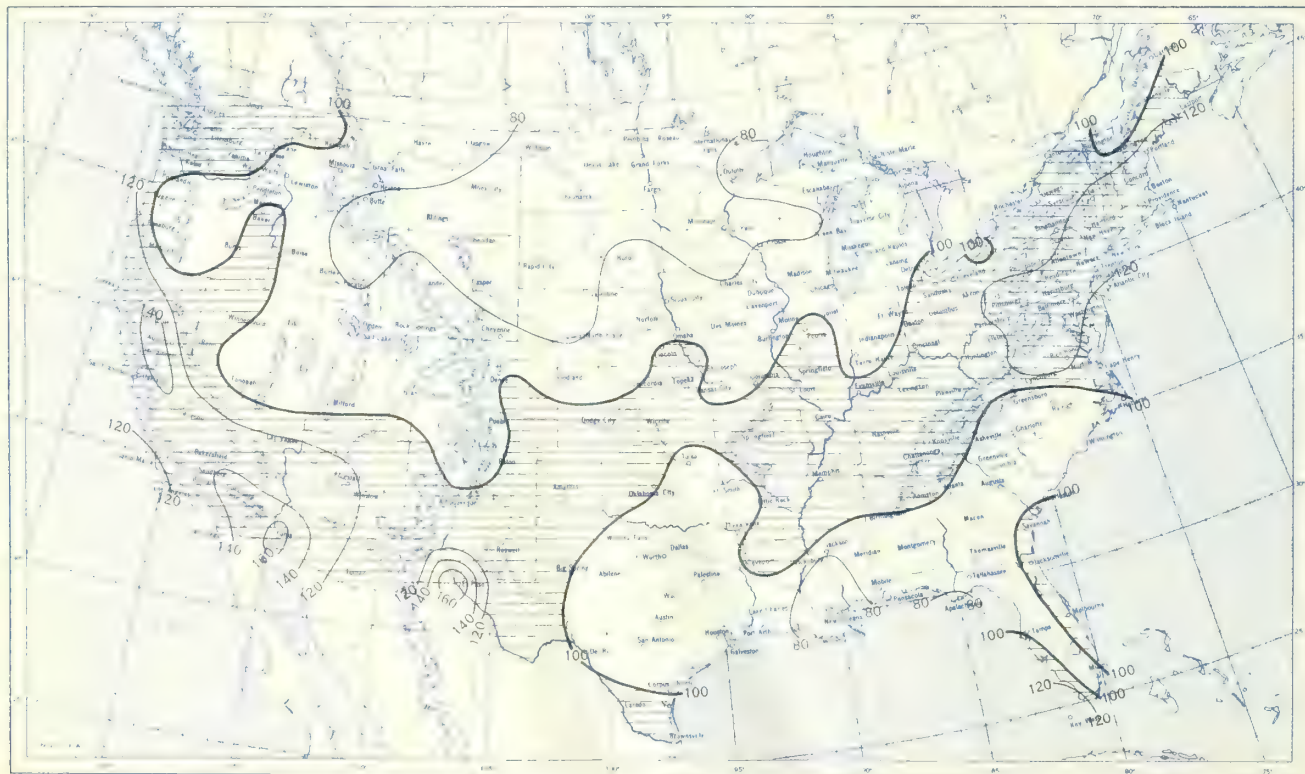
A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.  
B. Shows depth currently on ground at 7:30 a. m. E. S. T., of the Tuesday nearest the end of the month. It is based on reports from Weather Bureau and cooperative stations. Dashed line shows greatest southern extent of snowcover during month.



Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, April 1952.



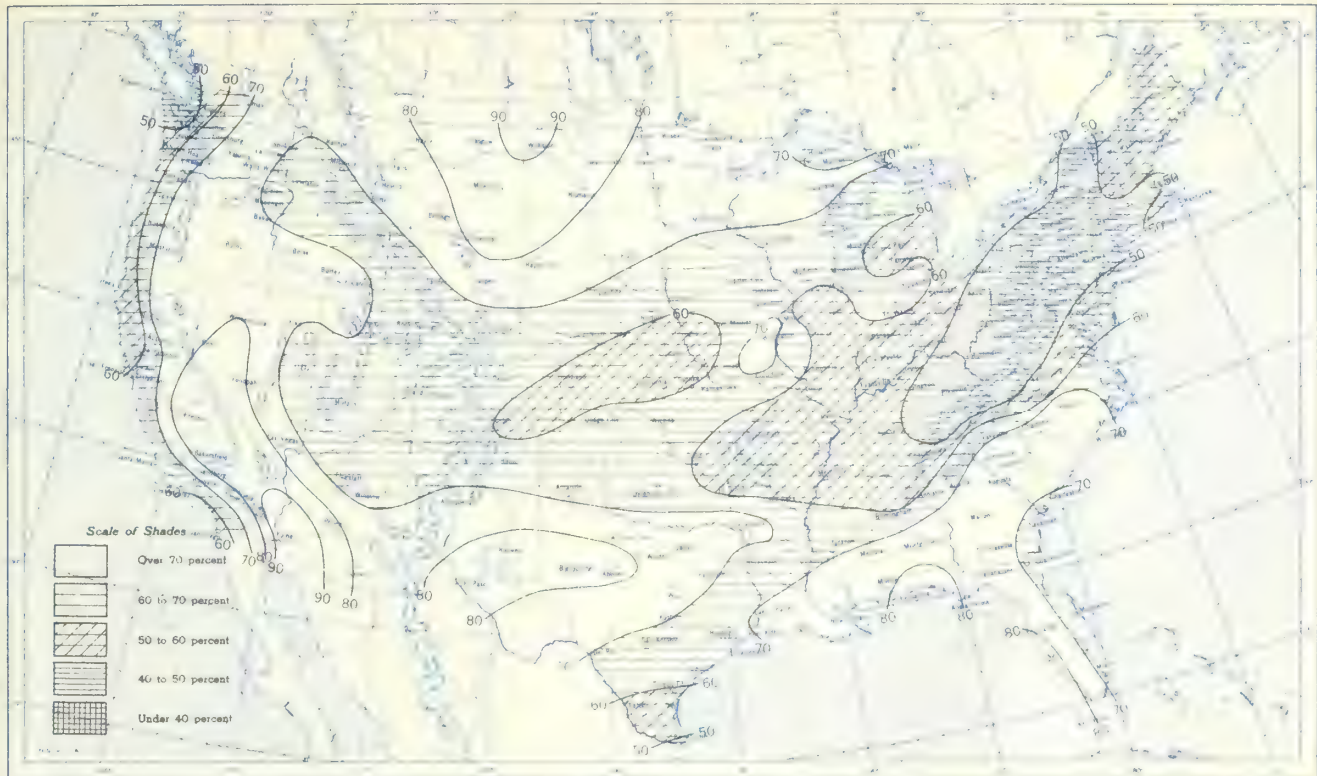
B. Percentage of Normal Sky Cover Between Sunrise and Sunset, April 1952.



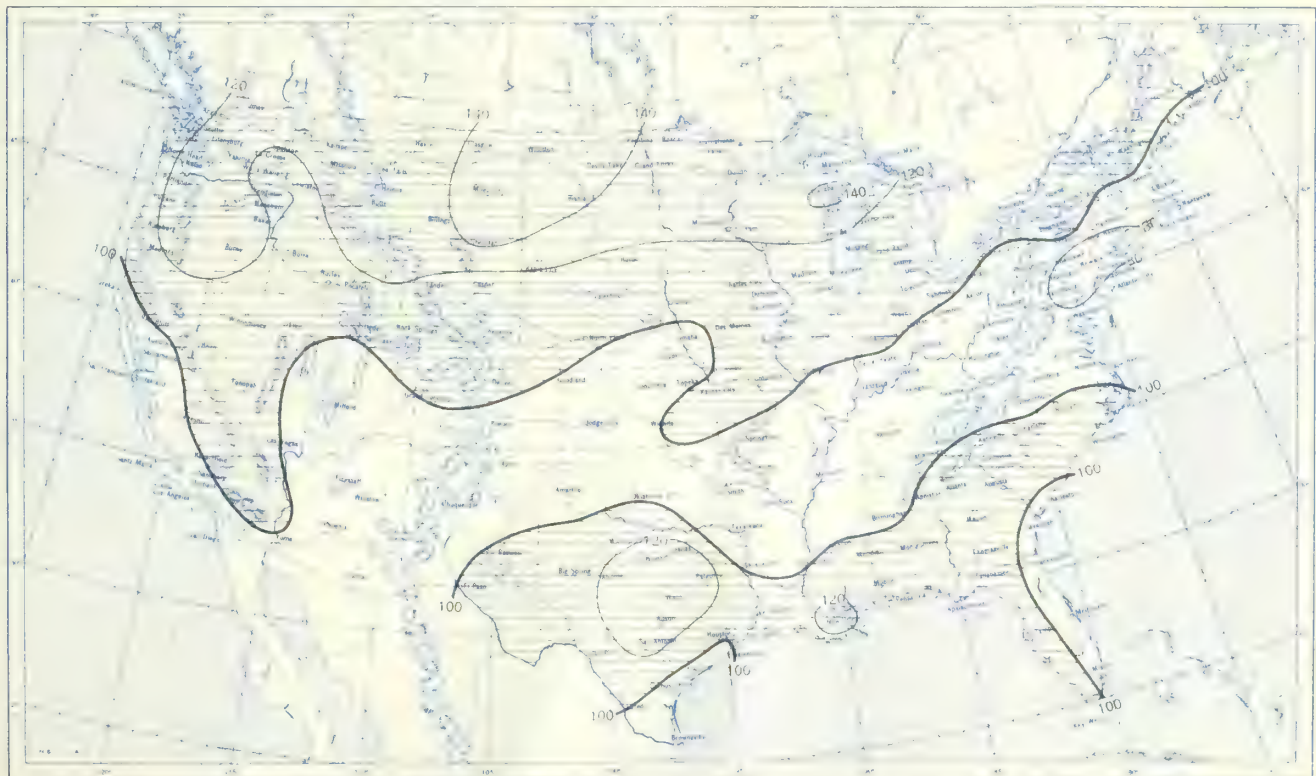
A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.



Chart VII. A. Percentage of Possible Sunshine, April 1952.



B. Percentage of Normal Sunshine, April 1952.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.



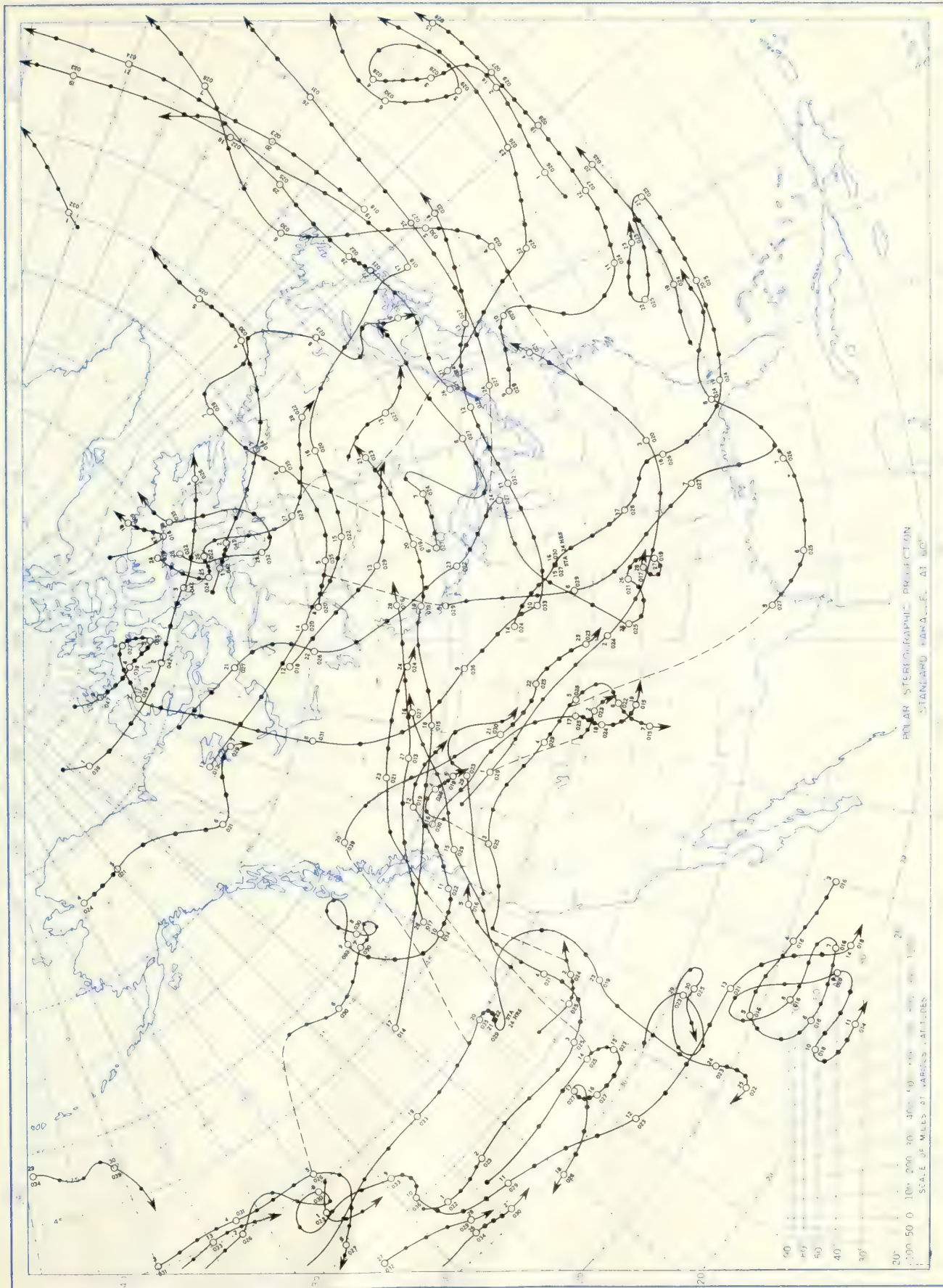
Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, April 1952. Inset: Percentage of Normal Average Daily Solar Radiation, April 1952.



Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm.). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown. Normals



Chart IX. Tracks of Centers of Anticyclones at Sea Level, April 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



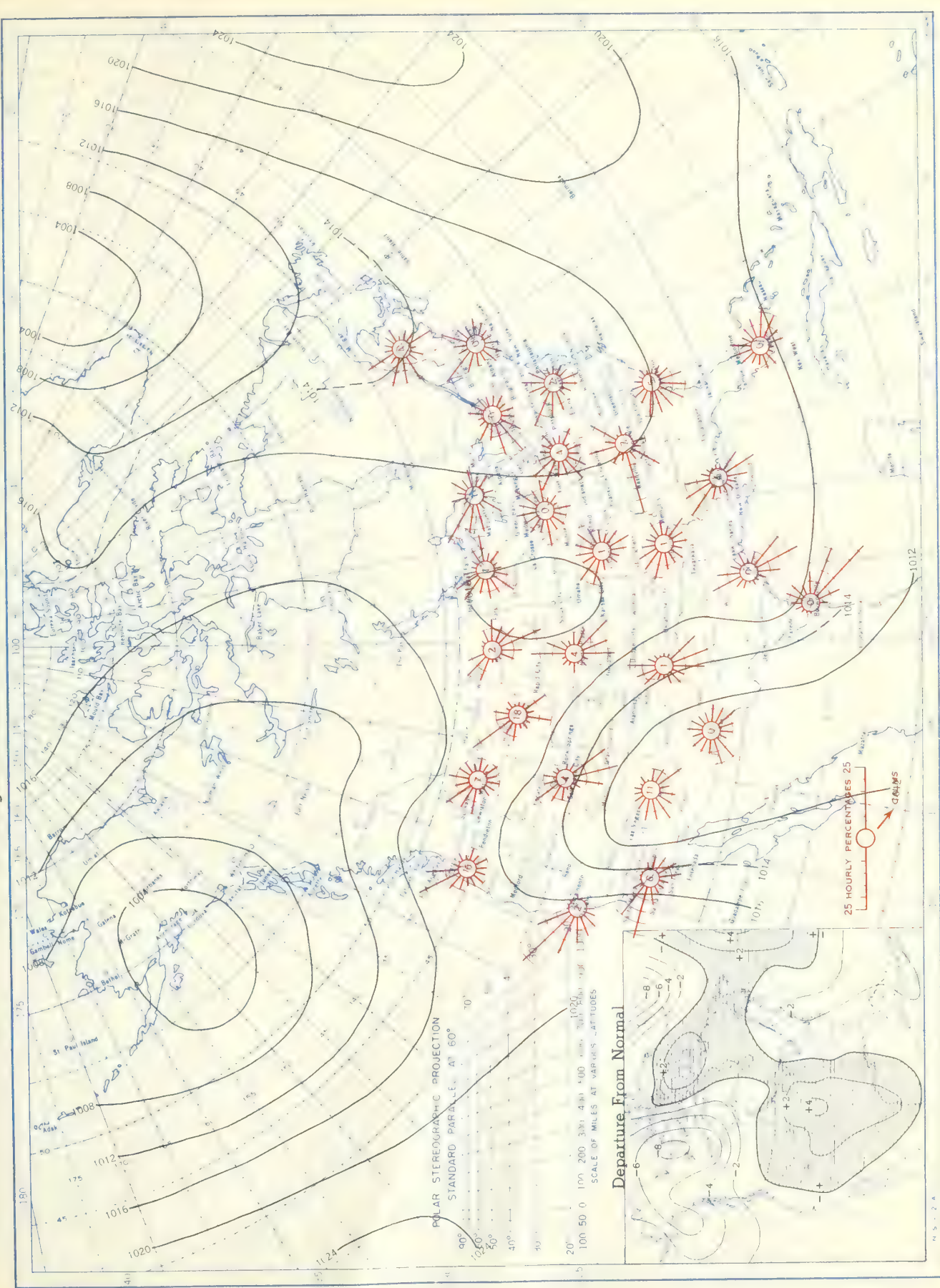
Chart X. Tracks of Centers of Cyclones at Sea Level, April 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. See Chart IX for explanation of symbols.



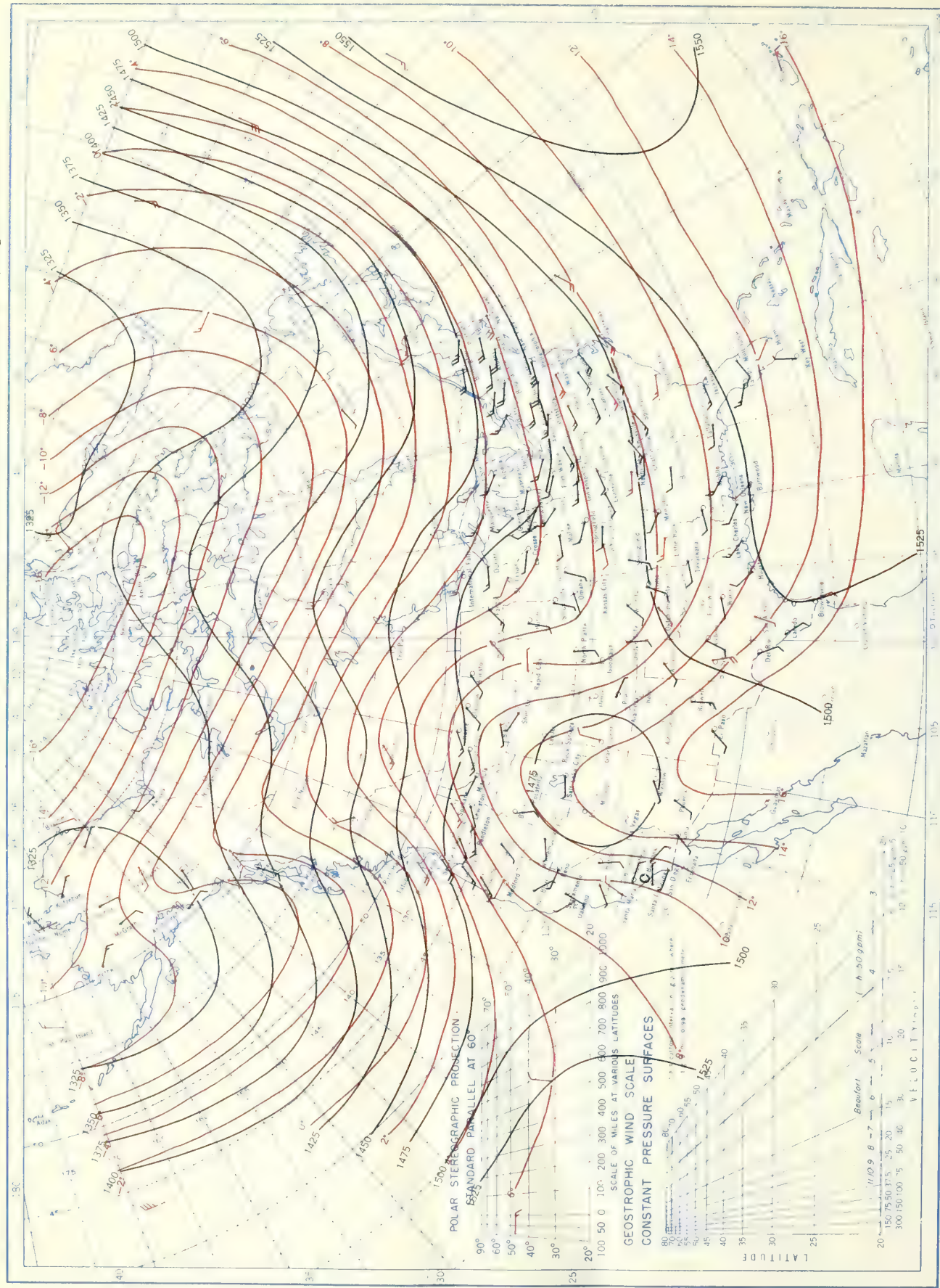
# Average Pressure (mb.) from Normal, April 1952.



Average sea level pressures are obtained from the averages of the 7:30 a. m. and 7:30 p. m. E. S. T. readings. Winds show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.



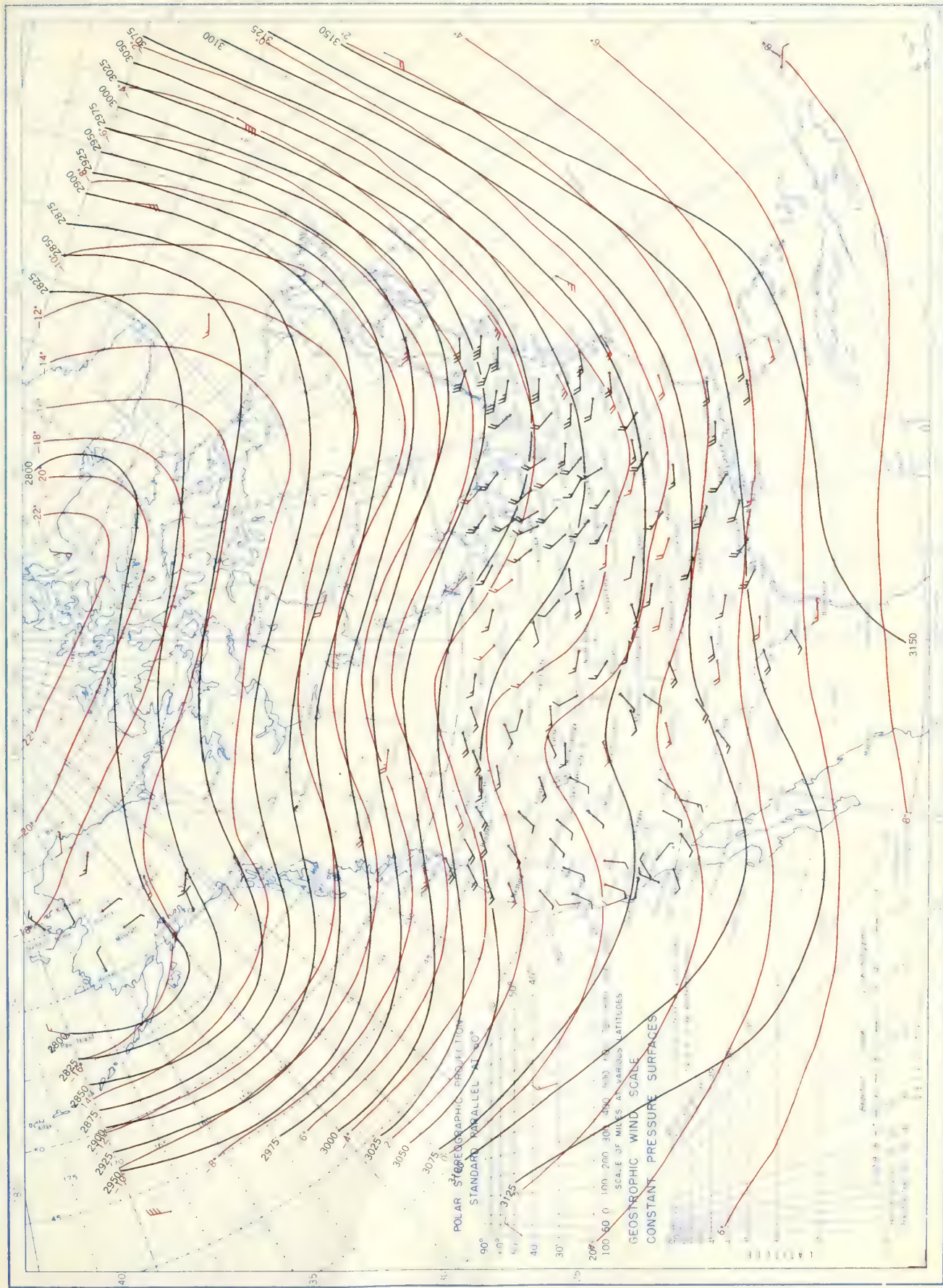
Chart XII. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 850-mb. Pressure Surface, Average Temperature in °C. at 850 mb., and Resultant Winds at 1500 Meters (m.s.l.), April 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0300 G. M. T.



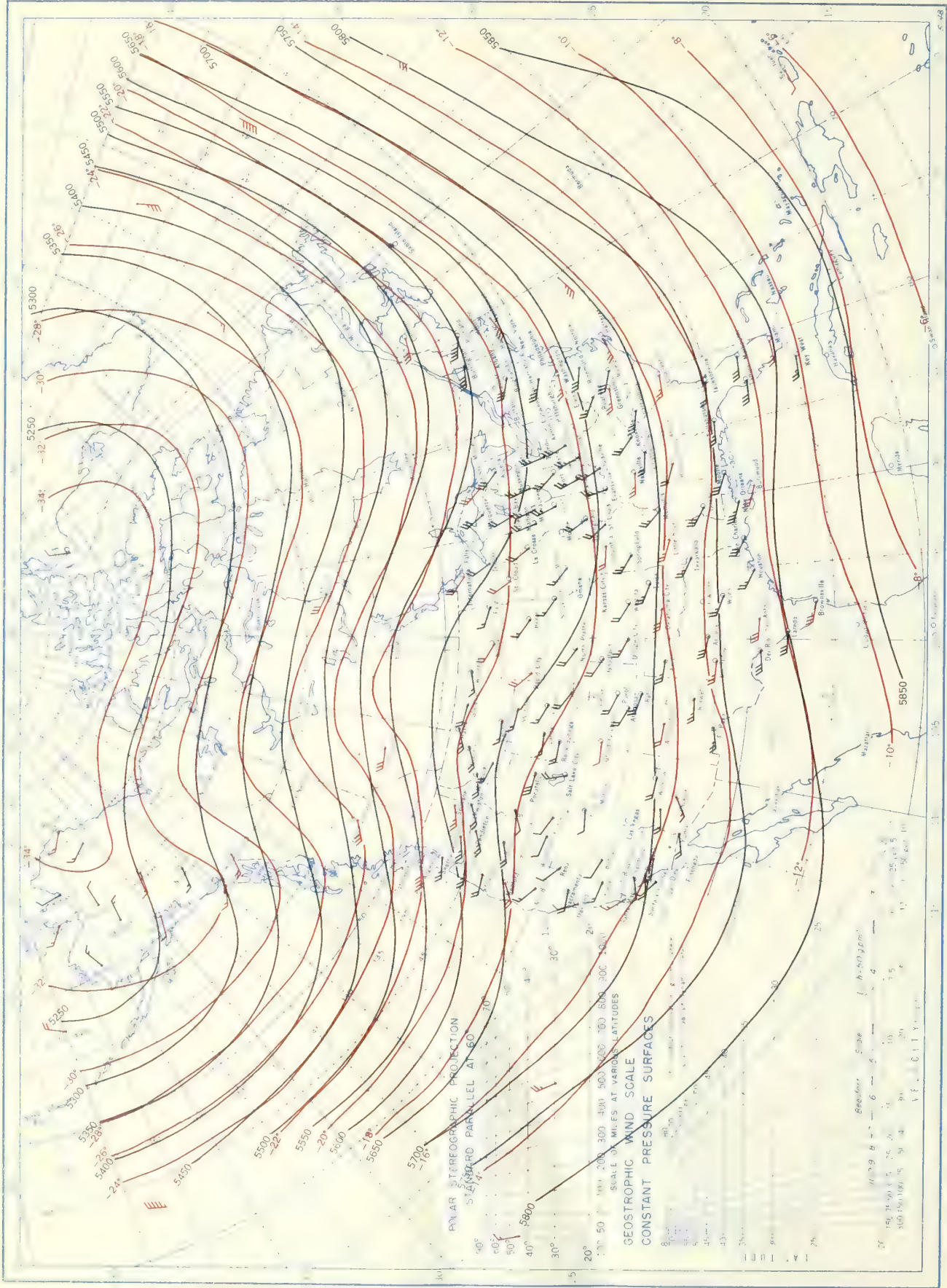
Chart XIII. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 100-mb. pressure Surface, Average Temperature in °C. at 700 mb., and Resultant Winds at 3000 Meters (m.s.l.), April 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0300 G. M. T.



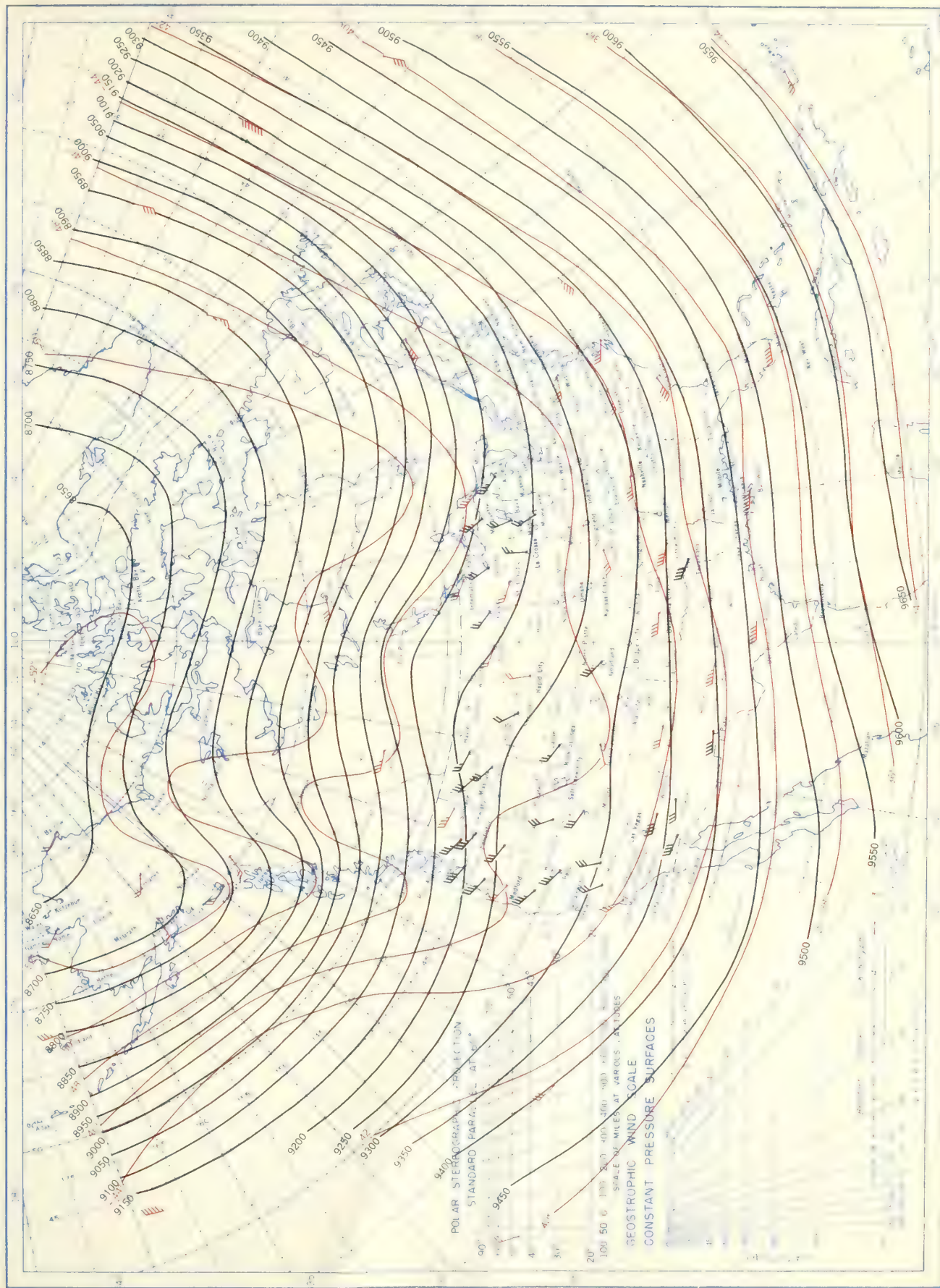
Chart XIV. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 500-mb. Pressure Surface, Average Temperature in C. at 500 mb., and Resultant Winds at 5000 Meters (m.s.l.), April 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T.



Chart XV. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.90 dynamic meters) of the 500-mb. Pressure Surface, Average Temperature in °C. at 300 mb., and Resultant Winds at 10,000 Meters (m.s.l.), April 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T.



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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

MAY 1952

Volume 3 No. 5





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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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## CLIMATOLOGICAL DATA

### NATIONAL SUMMARY

Volume 3 No. 5

MAY 1952

### GENERAL SUMMARY OF WEATHER CONDITIONS

For the country as a whole, temperature, precipitation, and sunshine averaged near normal. Except for high temperatures in the north-central interior and unusually low temperatures in the Pacific Northwest and extreme Northeast during the first few days of the month, there were no unusually warm or cold periods. Relative to normal, precipitation was very unevenly distributed, with a moisture deficiency in the northern Great Plains that was becoming serious by the end of the month. Melting snow caused severe floods in northern Utah, and moderate flooding in parts of Nevada and Idaho. None of the low pressure systems gained strong intensity and severe local storms were less frequent than usual, with the resulting total storm damage below average. Frost damage was generally light and limited to scattered sections in the far West and extreme north-central interior.

Temperature for the United States as a whole averaged  $61.8^{\circ}$ ,  $0.6^{\circ}$  above the long-term mean and  $0.1^{\circ}$  below the average for May 1951. Monthly averages generally were within  $1^{\circ}$  or  $2^{\circ}$  of normal, being generally above except in the northeastern interior, Missouri, Arkansas, Louisiana, and the southeastern half of Texas. They ranged from  $37.8^{\circ}$  at Sugarloaf Reservation in Colorado to  $83.3^{\circ}$  at Cow Creek, Calif. Extreme temperatures for the month ranged from  $10^{\circ}$  at Pinedale, Wyo., on the 9th to  $115^{\circ}$  at Palm Springs, Calif., on the 24th. Highest temperatures generally occurred near the end of the month in the Northeast, southern Florida, and west of the Continental Divide; during the second week in Texas, New Mexico, and eastern Arizona; and elsewhere during the first 6 days. The lowest temperatures generally were recorded during the first 5 days west of the Continental Divide and in the Northeast; from the 16th to 22d in much of the Southwest; and during the first part of the second decade elsewhere.

In the north-central interior maximum temperatures during the first 5 days ranged in the middle and high 90's, and averages for the period were as much as  $20^{\circ}$  above normal at some stations. In North Dakota the week ending May 5 was the hottest on record for so early in the season. At the same time, however, late season low temperature records were equalled or exceeded at several stations in the Pacific Northwest and in the extreme Northeast. A minimum of  $29^{\circ}$  at Albany, N. Y., on May 5 was the lowest temperature recorded there that late in the season since 1874.

Precipitation for the United States averaged 2.63 inches, 0.21 inch below the long-term mean and 0.28 inch above the average in 1951. Monthly totals were generally above normal in the Northeast, portions of the Gulf States, along the Continental Divide, in most of Nebraska and Iowa, and in a few scattered sections of the Pacific Northwest. Heaviest monthly totals occurred in the Gulf Coastal areas and ranged up to 14.91

inches at Donaldsonville, La. No measurable precipitation was recorded at most stations in the far Southwest and less than one-half of the monthly normal amounts were recorded in a few sections of the Pacific Northwest, eastern New Mexico, the extreme northern portions of the Great Plains, and parts of Missouri, Tennessee, and the Carolinas. In an area including North Dakota, extreme eastern Montana, and northern Minnesota, most stations received less than 0.5 inch of moisture during May and many of the same stations only a trace during April. The critical drought that had prevailed in western and southern Texas was relieved by rains during the first 3 days and again from about the 22d to the 24th.

Measurable snowfall east of the Rocky Mountains nearly all occurred from the 10th to the 12th, but traces fell in areas near the central Canadian Border on the 27th, 28th, and 29th. Heavy snow fell in the western portion of Upper Michigan and in northeastern Wisconsin on the 10th and 11th. Traffic was slowed, trees and shrubbery damaged, and power and communication services disrupted. Depths of 7 to 9 inches were measured at a few stations, and some snow remained on the ground until the 13th. In the far West a heavy snowstorm for so late in the season occurred in southwestern Montana on the 14th and 15th. During the storm 10.2 inches of snow fell at Butte and 9 inches at Mystic Lake. Monthly totals in the far West, ranged up to 17 inches at Kings Hill, Mont., and 13 inches at Crater Lake, Oreg. Some cattle were lost in southwestern Wyoming on the 16th during a snowstorm accompanied by high winds.

Damage and loss of life resulting from severe local storms were below average. There were no tornado deaths, which is very rare for May. The most destructive storm of the month was a combination of wind and hail which caused over \$2,000,000 damage in Oklahoma on the 23d. Other storms causing losses of \$1,000,000 or more included a windstorm in the San Joaquin Valley of California on the 19th, a hailstorm in Kansas on the 7th and 8th, a hail- and wind-storm in Kansas on the 21st, and a hail- and wind-storm in Oklahoma on the 22d and 23d. The most destructive tornado occurred at Adapha, Ga., on the 11th, with losses estimated at \$750,000. Severe flash floods in Brown and western Bartholomew Counties in south-central Indiana, resulting from excessive rains which measured 4.25 inches at Columbus and 5.45 inches at Nashville in less than 14 hours, destroyed property and livestock valued at \$100,000.

Weather conditions generally were favorable for agriculture. In the far West irrigation water was plentiful, livestock were generally in good condition, pastures and ranges normal, and soil moisture generally satisfactory. A drought was developing in North Dakota, extreme eastern Montana, and northern Minnesota, where subsoil moisture was becoming short and the lack of topsoil



# GENERAL SUMMARY OF WEATHER CONDITIONS-Continued

MAY 1952

moisture was already serious. Crop growth was slow in this area, germination of spring grains spotted, and the outlook for all crops decidedly

unfavorable. Elsewhere, east of the Rocky Mountains, crops were generally good and outdoor activities proceeded at a normal rate.

## CONDENSED CLIMATOLOGICAL SUMMARY

Table 1

MAY 1952

Section	Temperature								Precipitation							
	Average	Departure from normal	Monthly extremes						Average	Departure from normal	Monthly extremes					
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least		
	"F.	"F.		"F.			"F.		In	In.		In.		In.		In.
Alabama	71.9	+0.5	Frisco City	98	7	Gadsden	34	14	5.38	+1.49	Greenville	11.42	Belle Mina 2N	2.14		
Arizona	68.1	+2.3	Gila Bend	109	29	Alpine	20	23	.06	-.26	Deaverhead Lodge	.76	73 Stations	.00		
Arkansas	68.9	-.2	Brinkley	100	6	Gravette	31	12	4.14	-.97	Devils Knob	6.90	Crossett	1.89		
California	65.1	+2.0	Palm Springs	115	24	Twin Lakes	16	#	.37	-.43	Vollmers	4.05	231 Stations	.00		
Colorado	53.8	+1.2	Eversoll Ranch	98	4	Lake Moraine	13	18	1.75	.00	Hawthorne	6.86	Pt. Lewis	.20		
Connecticut	55.4	-2.1	4 Stations	88	*28	2 Stations	26	*1	4.90	+1.06	Norwalk	8.03	Natchaug Ranger Sta.	3.24		
Delaware	61.8	-1.4	Newark Col. Farm	85	28	do	33	3	4.82	+1.15	Newark Col. Farm	6.45	Del. City Reedy Pt.	3.55		
Florida	76.4	+8.7	7 Stations	97	*4	Compass Lake	41	12	3.78	-.11	Jacksonville Beach	11.67	Sarasota	.15		
Georgia	72.8	+7.2	2 Stations	99	6	Blairsville Exp. Sta.	31	*12	4.79	+1.36	Savannah USDA Plant	9.69	3 Stations	1.92		
Idaho	54.5	+1.3	do	93	*28	Obsidian 4NNE	20	5	1.42	-.17	Koonkia	6.13	Aberdeen Exp. Sta.	.12		
Illinois	62.6	-.1	Quincy	97	5	Aurora College	31	11	3.52	-.61	Urbana Eng. Campus	7.61	East Saint Louis	1.11		
Indiana	61.2	-.8	Evansville	96	5	Notre Dame Moreau	31	11	4.09	-.01	Nashville State Park	8.05	2 Stations	1.77		
Iowa	59.6	-.8	Inwood 2W	94	4	2 Stations	30	*13	3.79	-.17	Tipton	6.18	Inwood 2W	1.79		
Kansas	64.2	+4.0	Topeka WB City	99	5	Tribune 1W	27	11	2.49	-1.28	Ekridge	6.01	Jetmore	.38		
Kentucky	65.7	+3.5	5 Stations	94	*5	Grayson	32	14	3.85	-.13	Laura	7.96	Madisonville 1SE	1.02		
Louisiana	73.6	+2.2	Lake Providence	98	5	North Livingston	37	12	5.88	+1.22	Donaldsonville	14.19	Farmerville 6E	2.09		
Maine	50.9	-1.6	Old Town	90	24	2 Stations	23	#	3.87	+6.62	Farmington	5.60	Prentiss	2.00		
Maryland	61.9	-.9	3 Stations	98	*15	Oakland	26	3	5.16	+1.46	Lisbon	9.28	Vienna	2.20		
Massachusetts	54.9	-1.6	Springfield	88	24	Birch Hill Dam	23	1	3.88	+4.44	Ipswich	6.26	Provincetown 2WNW	2.21		
Michigan	53.6	-.3	3 Stations	92	5	Cadillac CAA AP	16	#	2.95	-.37	Three Rivers	8.31	Rogers City	.96		
Minnesota	55.5	+6.6	Springfield	96	4	4 Stations	23	*11	1.57	-1.58	Austin 4S	4.12	Red Lake Falls	.25		
Mississippi	72.1	+2.2	Clarksdale	98	5	Newton Exp. Sta.	36	12	5.18	+9.00	Paulding	11.15	Greenville 8SW	1.90		
Missouri	65.1	+5.5	Harrisonville	98	5	Anderson	29	12	3.03	-1.77	Monroe City	6.67	Owensville	.75		
Montana	53.5	+6.2	2 Stations	94	*3	Opheim 12SSE	15	28	2.14	+1.15	Fishtail	7.79	Sidney	.23		
Nebraska	59.5	+2.5	5 Stations	94	*4	Arthur	24	11	3.87	+4.44	Lyons	9.22	Bloomington 2S	.82		
Nevada	58.5	+1.5	3 Stations	105	*28	Marlette Lake	17	5	.31	-.47	Denio	1.75	15 Stations	.00		
New Hampshire	51.4	-2.6	Concord WB AP	82	28	Fabyas	19	2	4.27	+9.99	Pinkham Notch	7.17	Claremont	2.37		
New Jersey	59.2	-1.4	Pemberton 1E	98	29	Layton 3NW	24	3	5.75	+1.90	Loeburg Sta. Farm	9.38	Canton	3.02		
New Mexico	61.6	+9.2	2 Stations	101	*4	Gavilan	18	22	.72	-.53	Los Alamos	3.80	3 Stations	.00		
New York	52.8	-3.2	4 Stations	85	*28	Saranac Lake	12	5	4.45	+9.91	White Plains Apt.	8.36	Ogdensburg Hosp. 3NE	2.02		
North Carolina	68.4	+1.5	Whiteville	99	6	Mt. Mitchell	21	12	3.43	-.56	New Holland	7.07	Asheville WB City	.94		
North Dakota	55.3	+1.4	2 Stations	95	3	2 Stations	20	11	.68	-1.58	Reeder	6.16	2 Stations	.22		
Ohio	59.8	-.8	10 Stations	93	*3	Charles Mill Dam	25	#	3.45	-.30	Van Wert	7.01	New Lexington 2NW	.82		
Oklahoma	68.9	+7.7	Hollis	106	8	Tablequah	31	12	3.69	-1.13	Lawton	10.33	Guymon WB Airway	.71		
Oregon	54.4	+4.4	The Dalles	96	28	Senece	13	14	1.28	-.47	Cove 1ENE	3.82	Huntington	.21		
Pennsylvania	57.0	-2.6	Claysville 3W	88	5	Kane 1NNE	20	3	5.77	+1.74	Kregar 4SE	8.70	West Hickory	3.52		
Rhode Island	56.3	+4.4	Greenville	83	29	Greenville	33	5	3.64	+2.21	Providence WB AP	4.22	Greenville	2.97		
South Carolina	72.1	+1.1	Summerville 2WNW	98	7	Caesars Head	35	12	3.63	+1.15	Beaufort 7SW	8.54	Crescent	1.19		
South Dakota	57.1	+7.7	Orman Dam	95	3	Deerfield Dam	17	11	2.51	-.34	Pactola	10.14	Raymond	.21		
Tennessee	67.7	+6.2	2 Stations	96	6	Crossville Exp. Sta.	30	14	3.13	-.95	Haw Knob	6.73	Nashville	1.28		
Texas	71.9	-.6	do	108	#	Vega	33	19	3.65	+2.24	Stephensville	11.64	2 Stations	.12		
Utah	57.9	+2.2	St. George CAA AP	98	28	Silver Lake Brighton	18	22	.78	-.31	Silver Lake Brighton	2.95	do	.00		
Vermont	50.1	-3.9	2 Stations	83	*11	Chelsea 2S	20	5	4.10	+7.78	Ways Mill	7.23	Wilder	2.82		
Virginia	63.9	-.2	Martinsville Filter PI	93	5	Chilhowie 1S	31	14	3.93	+1.13	Dungannon	6.42	Altavista	1.67		
Washington	55.5	+2.2	Dallesport CAA AP	95	27	Rainier Paradise RS	16	2	1.21	-.69	Quinalt RS	5.73	Wenatchee	.18		
West Virginia	61.4	-.4	Brownsville	94	*24	Birch River 6SSW	23	#	5.24	+1.20	Pickens 1	9.01	Kayford	1.95		
Wisconsin	55.2	.0	Portage	95	1	Land O'Lakes	22	16	3.08	-.43	Gays Mills 1W	5.91	Danbury	1.53		
Wyoming	51.6	+1.6	Hampshire 3SW	92	3	Pinedale	10	9	2.68	+7.70	Sunsex 15ENE	6.83	Pinedale	.10		
* Alaska	9.5	-.9	LaTouche	55	28	Allakaket	-52	6	1.15	-.21	Port Alexander	13.79	Barrow WB	.09		
** Alaska	2.5	-1.4	Ugaliuk Bay	50	28	Allakaket	-52	*3	1.17	-.13	Baranof	16.29	2 Stations	.7		
† Hawaii	69.2	-1.2	Puene CAA AP	92	15	Baleakala RS	35	*14	4.52	-3.02	Kukui	40.00	15 Stations	.00		
Puerto Rico	78.1	+9.9	Guayama (2)	96	12	Guineo Reservoir	57	12	7.24	-.46	Guineo Reservoir	11.52	Tauco	.85		

\* Other dates also.

\*\* February 1952.

\* March 1952.

† April 1952.

Correction:

Nevada, April 1952 - Departure from normal precipitation should read +.42.



## CLIMATOLOGICAL DATA

Table 2

MAY 1952

State and station	Elevation (ground)	Pressure			Temperature										Precipitation						Wind				No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)	Possible sunshine						
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days 0.1 inch or more	With thunderstorms	Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile	Direction			Date	Clear	Partly cloudy	Cloudy		
												Max. 90° F. or above	Min. 32° F. or below								Total	Max. depth on ground											Total	Max. depth on ground
Ft.	Mb.	Mb.	F.	F.	F.	F.	F.	F.	F.	F.	F.	%	In.	In.	In.		In.	In.	In.	In.	In.	M. p. h.	M. p. h.			0-3	4-7	8-10	%					
ALABAMA																																		
Birmingham	610	990.2	1015.3	83	59	70.8	+1.5	92	6	43	12	5	0	57	67	3.31	-0.64	1.20	9	6	0.0	0	7.1	S	45	W	10	12	9	10	5.0	57		
Mobile CO	10	---	---	84	67	75.8	+1.4	92	6	51	12	4	0	0	---	---	7.25	+2.93	4.02	9	8	0	10.9	---	40	NW	11	9	13	9	5.3	---		
Mobile	211	1007.1	1015.1	86	65	75.4	---	94	5	45	12	7	0	64	75	7.07	---	3.10	11	11	T	9.2	S	---	---	---	9	13	9	---	---			
Montgomery CO	201	---	---	84	64	73.9	+5	94	7	46	12	5	0	---	---	4.51	+6.7	1.24	9	8	0	---	---	---	---	---	---	---	---	---	---	---		
Montgomery	198	1007.5	1015.0	85	62	73.1	-.3	93	6	45	12	5	0	62	72	5.92	+2.08	1.85	11	12	0	5.5	SW	32	W	10	10	11	10	5.2	70			
ARIZONA																																		
Flagstaff	6993	787.3	1015.6	69	35	52.3	---	77	28	26	17	0	9	---	---	T	---	T	0	2	T	0	---	---	---	---	---	20	7	4	3.1	---		
Payson CO	5000	---	---	80	47	63.6	---	90	27	40	9	1	0	---	---	16	---	15	2	4	0	0	---	---	---	---	23	5	3	2.5	---			
Phoenix CO	1063	---	---	96	65	80.7	+5.7	103	28	58	1	26	0	---	---	00	-.12	0.00	0	0	0	7.2	---	23	W	15	---	---	---	---	---			
Phoenix	1108	970.5	1008.7	96	63	79.6	---	103	26	55	9	27	0	41	28	0	-.12	0.00	0	0	0	5.0	---	---	---	---	23	7	1	2.0	---			
Prescott	5014	846.6	1012.1	80	47	63.2	---	86	27	35	16	0	0	27	29	0	---	T	0	1	0	0	9.7	SW	38	SW	*15	21	9	1	2.6	92		
Tucson	2558	923.1	1009.4	93	61	76.8	+3.6	98	12	48	18	26	0	37	25	0	-.16	0.02	1	2	0	6.8	SE	27	W	28	18	9	4	3.1	89			
Winslow	4880	850.7	1010.5	81	47	64.1	+1.8	99	13	37	16	0	0	26	28	T	-.33	T	0	1	0	9.3	WSW	*36	WSW	8	22	5	4	2.8	---			
Yuma	203	1003.4	1008.5	101	68	84.1	---	108	28	58	8	31	0	35	20	0	---	0.00	0	0	0	7.6	W	33	NW	20	26	4	1	1.4	99			
ARKANSAS																																		
Fort Smith	458	997.3	1013.6	82	57	69.5	-.4	92	5	44	11	6	0	53	75	3.45	-1.37	1.98	7	7	0	7.5	NE	29	SW	14	18	5	8	4.1	62			
Little Rock	257	1001.0	1014.0	82	59	70.5	+2	93	4	44	12	6	0	57	68	4.69	-1.09	2.03	7	5	T	8.9	SW	61	NW	9	17	6	8	4.3	77			
Texarkana	361	1000.7	1014.0	83	60	71.1	-.5	91	4	45	11	5	0	60	73	3.92	-.72	1.66	9	7	0	8.1	S	55	SW	10	18	4	9	4.0	80			
CALIFORNIA																																		
Bakersfield	489	995.9	1013.8	88	57	72.2	+2.0	101	27	46	4	13	0	43	38	0.00	-.36	0.00	0	0	0	6.4	WNW	*20	N	*7	22	8	1	2.0	---			
Beaumont CO	2589	---	---	82	48	64.9	---	91	24	41	9	7	0	---	---	00	---	0.00	0	0	0	0	---	---	---	---	23	6	2	2.2	---			
Bishop	4108	872.3	1011.5	84	45	64.2	---	93	27	35	5	0	0	---	---	T	---	T	0	0	0	0	---	---	---	---	15	13	3	3.3	---			
Blue Canyon	5280	839.8	1015.2	61	45	53.3	---	77	27	31	8	0	2	---	---	1.74	---	1.59	4	0	T	4.0	---	---	---	---	15	8	8	4.1	---			
Burbank	699	987.8	1013.9	79	54	66.6	---	88	18	49	5	0	0	52	65	T	---	T	0	0	0	4.9	S	*16	SSW	7	18	8	4	3.4	---			
Eureka CO	43	1017.6	1020.0	58	47	52.6	+6	78	19	39	2	0	0	---	---	1.77	-.03	1.03	8	0	0	0	---	---	---	---	14	7	8	16	6.7	60		
Fresno	331	1002.0	1013.8	86	53	69.6	+2.4	99	27	42	4	11	0	47	48	T	-.44	T	0	0	0	8.5	NW	38	N	19	19	8	4	3.0	98			
Los Angeles CO	312	---	---	77	57	66.7	+4.5	83	2	52	5	0	0	---	---	T	-.45	T	0	0	0	0	5.5	---	---	---	7	14	14	3	3.7	80		
Los Angeles	99	1010.2	1013.8	69	56	62.4	---	77	10	51	6	0	0	54	76	T	---	T	0	0	0	6.1	WSW	---	---	---	12	10	9	5.0	---			
Mt. Shasta CO	3543	893.0	1016.5	69	41	54.6	+1.2	85	27	27	4	0	3	---	---	1.91	+0.9	1.71	3	0	T	---	---	---	---	---	13	8	10	4.8	---			
Oakland	3	1016.6	1016.8	70	50	60.2	+2.5	88	19	41	5	0	0	48	69	0.16	-.61	1.6	2	0	0	7.6	W	---	---	---	16	9	6	4.1	---			
Red Bluff	341	1001.7	1014.3	83	56	69.7	+3.4	99	26	40	4	12	0	41	41	0.49	-.64	0.8	2	1	0	7.6	NNW	29	SE	*7	17	8	6	4.0	90			
Sacramento	17	1013.5	1014.4	82	50	65.7	+2.4	95	23	38	4	9	0	47	56	0.03	-.74	0.03	1	0	0	10.8	SW	32	SW	*7	21	6	4	2.9	86			
Sandberg	4517	862.9	1013.2	71	50	60.7	---	85	26	36	8	0	0	35	40	0.00	---	0.00	0	0	0	18.2	NW	---	---	---	20	9	2	2.3	---			
San Diego	19	1011.2	1014.2	71	58	64.1	+2.8	77	2	54	9	0	0	55	74	0.00	-.35	0.00	0	0	0	6.5	NNW	19	SW	*19	11	16	4	4.6	65			
San Francisco CO	52	---	---	65	50	57.4	+6	88	19	45	4	0	0	---	---	30	-.50	3.00	2	0	0	10.4	---	---	---	---	3	16	9	6	4.0	79		
San Francisco	1	1015.9	1016.7	66	47	56.8	+1.3	86	19	40	4	0	0	48	77	0.24	-.15	0.2	1	0	0	14.4	WNW	43	W	28	18	9	4	3.6	---			
Santa Catalina	1568	957.3	1013.5	71	52	61.6	---	87	18	47	9	0	0	---	---	T	---	T	0	0	0	0	---	---	---	---	20	7	4	3.2	---			
Santa Maria	231	1007.5	1016.0	70	46	57.7	---	84	13	38	4	0	0	48	75	T	---	T	0	0	0	6.4	W	*22	SSW	*7	14	12	5	4.3	---			
COLORADO																																		
Alamosa	7534	772.1	1015.5	67	36	51.3	---	77	5	26	10	0	8	---	---	1.01	---	0.56	12	4	5.6	1	---	---	---	---	10	17	4	4.6	---			
Colorado Springs	6175	811.4	1015.1	67	42	54.6	---	81	5	33	17	0	0	35	56	2.21	---	1.74	12	11	0	12.0	NNW	*35	NNW	23	7	14	10	5.9	---			
Denver	5292	837.8	1013.6	69	44	56.8	+1.6	83	13	34	18	0	0	38	56	3.06	+5.6	1.50	11	4	0	7.5	S	33	N	9	8	10	6.3	63				
Grand Junction	4849	857.8	1011.6	76	49	62.6	+1.5	86	3	39	10	0	0	32	36	1.44	-.37	0.21	5	4	0	9.1	ESE	47	NW	20	12	14	5	4.2	73			
Pueblo	4799	856.4	1013.7	74	46	59.9	+1.0	89	5	38	19	0	0	39	55	1.38	-.22	0.56	8	6	T	7.5	NW	42	NW	26	9	14	8	5.4	54			
CONNECTICUT																																		
Bridgeport	7	1012.2	1012.5	68	49	58.1	+6	79	29	40	3	0	0	44	64	5.53	+1.93	2.05	10	1	0	10.0	N	*32	W	12	11	6	14	6.0	---			
Hartford	15	1006.1	1012.1	68	45	56.6	---	89	28	34	1	0	0	43	64	4.42	+8.2	1.38	13	2	0	8.4	NW	37	SW	12	7	11	13	6.6	60			
New Haven	6	1007.8	1011.9	66	47	56.6	+1.2	77	29	37	2	0	0	---	---	5.45	+2.07	1.63	12	2	0	7.3	---	31	---	---	12	9	9	13	6.2	53		
DELAWARE																																		
Wilmington	73	1009.5	1012.8	71	51	61.1	-1.7	84	28	39	3	0	0	48	64	4.61	+8.0	2.01	15	4	0	8.9	NW	---	---	---	6	11	14	6.7	---			
FLORIDA																																		
Apalachicola CO	13	1013.2	1014.6	81	68	74.3	-.3	85	5	52	12	0	0	---	---	2.29	-1.11	1.43	6	8	0	0	---	---	---	20	15	6	10	4.4	69			
Daytona Beach	33	1014.0	1015.9	86	63	74.9	+1.2	93	*5	48	15	8	0	66	79	4.39	+7.85	1.89	12	17	0	8.1	S	*29	ESE	29	9	11	11	5.2	---			
Fort Myers	15	1015.2	1015.6	90	66	77.9	+7	95	22	55	14	20	0	66	73	1.75	-2.37	0.93	7	6	0	0	7.7	E	*30	SSE	28	9	15	7	5.6	---		
Jacksonville CO	18	---	---	87	67	76.9	+1.9	93	7	55	12	10	0	---	---	7.83	+3.81	2.74	11	---	0	0	---	---	---	---	---	---	---	---	---	---		
Jacksonville	52	1014.6	1015.5	88	65	76.7	+2.1	95	7	50	14	15	0	62	66	9.49	+5.47	3.51	11	9	T	8.6	WSW	39	N	11	11	11	9	5.0	---			
Key West CO	5	1014.2	1014.9	87	75	81.0	+1.9	91	29	70	1	2	0	70	73	0.74	-2.80	0.42	5	2	0	7.3	---	19	NW	13	6	17	8	5.5	70			
Key West	6	1014.6	1015.1	86	76	80.5	+2.0	91	28	69	1	2	0	70	73																			



## CLIMATOLOGICAL DATA

MAY 1952

Table 2-Continued

State and station	Elevation (ground)	Pressure			Temperature										Precipitation					Wind				No. of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity		Total	Departure from normal	Greatest in 24 hours	No. of days	Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		No. of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
												Max. 90° F or above	Min. 32° F or below		In.	In.					In.	In.			In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	



## CLIMATOLOGICAL DATA

Table 2-Continued

MAY 1952

State and station	Elevation (ground)	Pressure			Temperature										Precipitation							Wind				No. of days (sunrise to sunset)		Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	In. each or more	With thunderstorms	Snow, Sleet, Hail	Average hourly speed	Prevailing direction	Fastest mile																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
												Max. 90° F or above	Min. 32° F or below											Direction	Speed	Direction	Date		Clear	Partly cloudy	Cloudy																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
																																In.	In.	In.	In.	In.	p. h.	p. h.	0-3	4-7	8-10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	Ft.	Mb.	Mb.	F.	F.	F.	F.	F.	F.	F.	F.		F.	%	In.	In.	In.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										



## CLIMATOLOGICAL DATA

Table 2-Continued

MAY 1952

[illegible]

See reference notes at end of table



## CLIMATOLOGICAL DATA

Table 2-Continued

MAY 1952

State and station	Elevation (ground)	Pressure			Temperature							Precipitation							Wind			No. of days		Sky cover, tenths (sunrise to sunset)	Possible sunshine								
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max. 90° F. or above	Min. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	.01 inch or more	No. With thunderstorms	Total	Max. depth on ground	Average hourly speed			Prevailing direction	Fastest mile		(sunrise to sunset)				
																											Speed	Direction		Date	Clear	Partly cloudy	Cloudy
PACIFIC AREA																																	
Canton Island	9	1008.8	1009.1	91	79	85.1	----	96	6	75	27	25	0	75	77	5.21	-----	1.47	14	1	0.0	0	-----	-----	-----	-----	7	17	7	5.5	--		
Rilo	28	1015.9	1017.3	78	65	71.4	-----	83	31	59	20	0	0	64	80	6.57	-----	1.71	27	0	0	0	5.5	NE	20	NNW	18	1	7	23	8.5	34	
Honolulu CO	12	-----	-----	78	69	73.3	-1.5	81	27	65	5	0	0	-----	-----	5.0	-1.24	.37	7	0	0	0	-----	-----	-----	-----	-----	-----	-----	-----	-----		
Honolulu	7	1017.6	1018.2	80	67	73.7	-----	83	27	63	15	0	0	61	65	.15	-----	.08	6	0	0	0	12.3	ENE	33	NE	1	10	9	12	5.9	72	
Koror	117	1004.4	1008.2	88	76	82.0	-----	92	29	74	2	17	0	-----	-----	16.66	-----	2.70	30	5	0	0	-----	-----	-----	-----	0	14	17	7.7	--		
Lihue	115	1013.2	1018.4	78	66	72.3	-----	80	23	61	15	0	0	64	73	1.44	-----	.40	22	0	0	0	12.6	NE	26	NE	2	1	14	16	7.1	59	
Moen Island (Truk Group)	3	1010.5	1010.7	86	75	80.9	-----	89	24	71	31	0	0	-----	-----	11.37	-----	1.61	28	1	0	0	-----	-----	-----	-----	1	9	21	8.2	--		
Ponape	109	1006.1	1011.3	87	75	81.3	-----	91	15	72	2	7	0	-----	-----	23.56	-----	5.48	30	2	0	0	-----	-----	-----	-----	0	9	22	8.3	--		
Wake Island	9	1015.2	1015.8	85	75	80.0	-----	87	3	72	31	0	0	72	77	3.63	-----	1.21	23	1	0	0	15.3	E	-----	-----	6	14	11	6.2	--		
Yap	51	1008.1	1010.0	89	77	82.6	-----	91	5	73	4	11	0	-----	-----	11.49	-----	2.33	27	0	0	0	-----	-----	-----	-----	0	6	25	8.7	--		
WEST INDIES																																	
San Juan, P.R. CO	47	-----	-----	85	74	79.3	+7	90	29	72	9	3	0	-----	-----	6.77	+1.53	2.61	18	8	0	0	-----	-----	-----	-----	-----	-----	-----	-----	-----		
San Juan, P.R.	9	1012.9	1014.6	86	74	80.2	-----	93	17	72	20	5	0	80	73	8.25	-----	3.70	18	8	0	0	10.3	ESE	30	S	30	2	20	9	6.4	64	
ALASKA																																	
Anchorage	134	1008.5	1013.6	51	33	42.0	-3.7	62	27	24	1	0	15	30	61	.32	-.19	.11	5	0	.4	T	6.4	NW	30	S	30	7	6	18	7.0	63	
Annette Island	110	1015.2	1019.2	55	41	47.7	-2.2	68	16	34	4	0	0	41	78	3.26	-1.34	.99	14	0	T	0	9.2	SE	*35	ESE	1	8	2	21	7.3	--	
Barrow	22	1017.6	1018.3	21	9	15.3	-4.1	28	29	-10	3	0	31	12	84	.15	+0.1	.05	7	0	1.6	11	9.2	NE	29	SW	1	3	3	23	8.3	--	
Bethel	21	1011.9	1013.2	42	27	34.2	-5.8	60	28	8	7	0	24	29	83	1.76	+8.7	1.09	10	0	5.1	10	10.5	N	*30	S	4	1	11	19	7.7	--	
Cordova	40	1012.5	1014.3	49	33	40.6	-2.7	56	22	25	15	0	17	34	79	4.80	-2.34	1.18	19	0	2.8	3	4.7	ESE	-----	-----	2	3	26	8.6	--		
Fairbanks	436	995.9	1013.1	51	32	41.6	-5.0	69	19	14	3	0	14	28	57	.33	-.44	.16	6	0	3.1	3	5.7	N	*26	W	2	1	6	24	8.3	--	
Galena	120	1008.5	1013.3	44	26	35.0	-7.2	62	29	0	7	0	21	26	70	.49	-.60	.17	9	0	3.3	26	5.4	NNE	*25	WSW	4	7	4	20	7.3	--	
Gambell	25	1012.2	1013.4	32	25	28.1	-1.2	39	11	10	2	0	31	25	89	.62	+0.1	.21	14	0	6.2	17	16.0	NE	*35	NE	29	0	3	28	9.3	--	
Juneau	15	1016.6	1017.4	50	39	44.7	-2.1	62	16	32	26	0	1	40	84	6.19	+3.24	1.31	26	0	T	0	8.4	SE	37	SE	11	0	3	28	9.6	11	
Kotzebue	10	1014.2	1014.7	31	16	23.2	-6.4	45	27	-9	2	0	30	19	81	.35	+0.1	.08	11	0	6.0	18	11.5	W	*40	WNW	5	5	16	7.1	--		
McGrath	334	1000.7	1013.6	46	28	36.7	-6.6	65	29	13	7	0	18	28	68	.68	-.30	.36	5	0	3.5	19	5.8	W	*27	SSW	4	6	6	19	7.2	--	
Nome	13	1013.5	1014.1	35	23	28.8	-5.3	52	28	-5	2	0	26	25	84	1.28	+6.9	.60	11	0	9.8	19	9.8	ENE	*28	ENE	4	6	9	16	7.1	--	
Northway	1713	948.9	1012.5	50	28	39.3	-6.0	62	19	20	3	0	24	27	61	.44	-.29	.28	3	0	T	19	8.4	NW	*20	NW	6	1	6	24	8.4	--	
St. Paul Island	22	1010.2	1011.4	40	31	35.5	+5	46	28	16	7	0	16	32	88	1.15	-.29	.31	13	0	T	13	-----	-----	-----	-----	0	1	30	9.5	--		
Uniat	337	1006.4	1020.1	24	8	15.7	-5.7	35	26	-22	3	0	31	12	81	.14	+0.4	.07	6	0	1.4	13	7.1	E	-----	-----	5	4	22	7.5	--		
Yakutat	28	1014.9	1016.1	47	34	40.1	-4.2	56	17	25	11	0	11	37	88	11.49	+3.81	2.44	22	0	.7	11	9.9	ESE	*47	SE	6	0	5	26	8.9	--	

Data from airport unless otherwise specified. CO indicates data from city office.

\* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

\* Other dates also.

† Peak gust.

# Max. 70°F. or above for Alaskan Stations.



## HEATING DEGREE DAYS

(Base 65°F.)

MAY 1952

Table 3

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period July through this month	Long term mean July through this month		This month	Period July through this month	Long term mean July through this month		This month	Period July through this month	Long term mean July through this month		This month	Period July through this month	Long term mean July through this month
ALABAMA				INDIANA (Cont'd.)				NEW JERSEY				TEXAS (Cont'd.)			
Birmingham	20	2505	2532	Terre Haute	141	5317		Atlantic City (CO)	159	4336	4978	Austin	0	1410	1679
Mobile (CO)	0	1327	1537	IOWA				Newark	160	4832		Big Spring	30	2303	2637
Mobile	5	1433		Burlington	174	6231	5791	Trenton (CO)	154	4727	5084	Brownsville	0	361	628
Montgomery (CO)	9	1800	2052	Charles City (CO)	254	7655	7562	NEW MEXICO				Corpus Christi	0	642	967
Montgomery	11	1947	2071	Davenport (CO)	167	6205	6195	Albuquerque	58	4324	4416	Dallas	14	2043	2354
ARIZONA				Des Moines	189	6906	6388	Clayton	189	5263	4949	Del Rio	0	1120	1500
Flagstaff	388	7395	6994	Dubuque	249	7479	6870	Newton	303	6334		El Paso	14	2540	2531
Payson (CO)	64	4264		Keokuk (CO)	132	5654	5645	Roswell	54	3311	3576	Ft. Worth	10	2035	2352
Phoenix (CO)	0	1540	1433	Sioux City	186	7342	6943	NEW YORK				Galveston (CO)	0	821	1170
Phoenix	0	1649		KANSAS				Albany	320	6754	6636	Galveston	0	848	
Prescott	81	4744		Concordia (CO)	99	5619	5383	Bear Mountain (CO)	313	6404		Houston (CO)	0	1005	
Tucson	0	1860		Dodge City	105	5243	5065	Binghamton	400	7222	6753	Houston	0	1084	1331
Winslow	77	4701		Goodland	228	6445	5649	Buffalo	339	6472	6881	Laredo	0	572	
Yuma	0	1046	1038	Topeka (CO)	93	5234	5091	New York (CO)	176	4671	5250	Lubbock	65	3525	
ARKANSAS				Topeka	110	5378		La Guardia Field	147	4549		Palestine (CO)	6	1726	2068
Ft. Smith	29	3239	3211	Wichita	71	4913	4647	Oswego (CO)	401	6586	7062	Port Arthur (CO)	0	1010	1336
Little Rock	25	2940	2998	KENTUCKY				Rochester	324	6520	6686	Port Arthur	0	1190	
Texarkana	11	2333		Lexington	82	4515	4748	Schenectady	276	6526		San Angelo	19	1971	
CALIFORNIA				Louisville (CO)	75	4184	4397	Syracuse	327	6547	6804	San Antonio	0	1209	1445
Bakersfield	9	2266	2161	Louisville	74	4318		NORTH CAROLINA				San Antonio	0	1504	
Beaumont (CO)	64	3189		Pikeville (CO)	40	3710		Asheville (CO)	61	3825	4031	Victoria	6	1504	
Bishop	56	4661	4323	LOUISIANA				Asheville	92	4034		Waco	6	1752	
Blue Canyon	361	6174		Baton Rouge	4	1296	1508	Charlotte	22	2971	3175	Wichita Falls	21	2704	
Burbank	22	1917		Lake Charles	0	1119		Greensboro	41	3616	3851	UTAH			
Eureka (CO)	375	4673	4451	New Orleans (CO)	0	926	1224	Hatteras	3	2166	2515	Milford	212	6734	
Fresno	24	2642	2406	Int. Airport, Moisant	0	1052		Raleigh (CO)	29	2904	3285	Salt Lake City (CO)	134	5803	5481
Los Angeles (CO)	10	1454	1478	Shreveport	7	1495	2132	Raleigh	35	3171		Salt Lake City	151	6271	6049
Los Angeles	78	1726		MAINE				Wilmington	11	2169	2398	VERMONT			
Mt. Shasta (CO)	317	5908		Caribou	475	9376		Winston-Salem	44	3483		Burlington	402	7481	7801
Oakland	165	2961	2972	Eastport (CO)	512	7425	8092	NORTH DAKOTA				Cape Henry (CO)	46	3007	3499
Red Bluff	46	2866	2644	Greenville (CO)	522	9043	9245	Bismarck	297	9784	8872	Lynchburg	65	4007	3997
Sacramento (CO)	52	2689	2659	Portland	406	7277	7241	Devils Lake (CO)	337	10146	9989	Norfolk (CO)	22	2873	3359
Sacramento	78	2873		MARYLAND				Fargo	301	9946	9231	Norfolk	39	3174	
Sandberg (CO)	175	4905		Baltimore (CO)	77	3976	4440	Grand Forks			9748	Richmond (CO)	51	3528	3867
San Diego	32	1400	1637	Baltimore	115	4437		Williston (CO)	294	9585	9179	Richmond	58	3718	
San Francisco (CO)	239	3333	2978	Frederick	113	4658		OHIO				Roanoke	64	3996	4125
San Francisco	253	3300	3234	MASSACHUSETTS				Akron	265	6251	6170	WASHINGTON			
Santa Catalina	134	2602		Boston	238	5423	5870	Cincinnati (CO)	86	4305	4926	Ellensburg	269	6993	
Santa Maria	219	2866		Milton	322	6248		Cincinnati	121	4921		Kelso	323	5207	
COLORADO				Nantucket	335	5408	5744	Cleveland (CO)	235	5610	6088	North Head (CO)	417	5324	4891
Alamosa	417	8599		Pittsfield	421	7409		Cleveland	222	5826		Olympia	344	5499	
Colorado Springs	317	6513		MICHIGAN				Columbus	156	5387	5447	Port Angeles	421	5708	
Denver	253	6091	5749	Alpena (CO)	436	7849	8077	Dayton	163	5512	5461	Seattle (CO)	442	4423	4368
Grand Junction	109	6047	5601	Detroit	235	6263	6563	Sandusky (CO)	197	5648	6053	Seattle	335	5257	
Pueblo	173	5583	5518	Escanaba (CO)	391	8367	8582	Toledo	226	6168	6245	Spokane	256	6890	6258
CONNECTICUT				Grand Rapids (CO)	235	6424	6645	Youngstown	297	6299		Stamper Pass (CO)	644	9056	
Bridgeport	213	5259		Lansing	274	6973	7062	OKLAHOMA				Tacoma (CO)	309	4883	4868
Hartford	256	5752	6049	Marquette (CO)	469	8455	8527	Oklahoma City (CO)	40	3548	3661	Tatoosh Island (CO)	457	5775	5565
New Haven	256	5472	5825	Muskegon	331	7005		Oklahoma City	41	3617		Walla Walla (CO)	136	4921	4872
DELAWARE				Sault Ste. Marie	518	9099	9073	Tulsa	37	3721		Yakima	197	6272	5580
Wilmington	140	4653		Ypsilanti	229	6373		OREGON				WEST VIRGINIA			
DIST. OF COLUMBIA				MINNESOTA				Baker (CO)	364	7282	6980	Charleston	101	4191	
Washington (CO)	69	3966	4501	Duluth (CO)	431	9640	9437	Baker	365	7808		Elkins	224	5631	5729
Washington	76	3960		Duluth	421	9852		Burns (CO)	341	7413		Huntington	45	3794	
FLORIDA				International Falls	224	8167	7904	Engene	287	4648		Perkersonburg (CO)	101	4541	4911
Apalachicola	1	1079	1214	Minneapolis	318	8353		Mecham	513	7751		Petersburg	131	4794	
Daytona Beach	5	583		Rochester	284	9185	8774	Medford	200	4788	4584	WISCONSIN			
Fort Myers	0	272	277	St. Cloud	212	8010	7905	Pendleton	184	5365		Green Bay	335	8233	7840
Jacksonville (CO)	0	926	1132	St. Paul				Portland (CO)	198	4276	4249	La Crosse (CO)	232	7441	7369
Jacksonville	1	1078		MISSISSIPPI				Portland	230	4675		La Crosse	253	7724	
Key West (CO)	0	17	46	Jackson	8	1953	2166	Roseburg (CO)	215	4063	4210	Madison (CO)	235	7288	7342
Key West	0	31		Meridian	16	2045	2213	Salem	295	4644		Madison	259	7490	
Melbourne	0	374		Vicksburg (CO)	7	1784	2054	Sector Summit (CO)	432	6290		Milwaukee (CO)	332	6978	7042
Miami (CO)	0	145	182	MISSOURI				Troutdale	252	4797		Milwaukee	333	7210	
Int. Airport, Hialeah	0	107		Columbia	110	5110	5020	PENNSYLVANIA				WYOMING			
Miami Beach	0	57		Kansas City	91	5057	4976	Allentown	215	4739		Casper	345	7661	
Orlando	0	545		St. Joseph	118	5634	5316	Erie (CO)	308	5817	6255	Cheyenne	408	7651	7384
Pensacola (CO)	0	1210	1423	St. Louis (CO)	85	4568	4568	Harrisburg	156	5116	5379	Lander	360	8022	8098
Tallahassee	3	1138		St. Louis	88	4767		Park Place (CO)	319	6734		Rock Springs (CO)	364	8226	
Tampa	0	434	550	Springfield	96	4712	4556	Philadelphia (CO)	110	4275	4722	Rock Springs	412	8716	
West Palm Beach	0	156		MONTANA				Philadelphia	122	4461		Sheridan	298	7971	
GEORGIA				Billings	266	7473		Pittsburgh (CO)	158	4847	5312	ALASKA			
Albany	3	1435	1651	Butte	516	10113		Pittsburgh	191	5293	5633	Anchorage	708	11148	
Atlanta (CO)	24	2709	2968	Glasgow (CO)	229	9463		Reading (CO)	130	4735	5155	Annette Island	528	7149	
Atlanta	18	2667		Great Falls	309	8084		Scranton (CO)	244	5845	6136	Barrow	1538	18611	19107
Athens	26	2775		Havre (CO)	236	8954	8306	Williamsport	223	5914	5992	Bethel	950	13005	12534
Augusta	11	2205	2273	Helena	368	8762	7738	RHODE ISLAND				Cordova	747	9941	
Columbus	13	2092		Klispell	346	8273	7812	Block Island	315	5193	5754	Fairbanks	721	14209	14051
Macon	11	1896	2317	Miles City	218	8783		Providence (CO)	220	5249	5860	Galena	925	15343	
Rome	31	3026		Missoula	348	7998	7458	Providence	257	5560		Gambell	1138	13802	
Savannah	5	1548													



## SEVERE STORMS

Table 4

MAY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Fajardo, P. R.	1	3-11 a.m.						\$20,000	Thunder- storm	Moderate to heavy thunderstorms which occurred at Fajardo, P.R. on the 1st; at Corozal, P.R. on the 8th; at Leres-Hatillo on the 9th and 10th, and in the metropolitan area of San Juan-Santurce on the 27-28th, caused heavy floods with a total damage to roads, bridges and buildings estimated to be \$103,000.00.
Porter (near), Wa- goner Coun- ty, Okla.	1	2 p.m.	*5	5			\$1,000	Minor	Wind	Many roofs damaged.
Taylor, Wil- liamson County, Tex.	1	2 p.m.	*2	6				1,250	Hail	Cotton and corn damaged 1½ miles east of Taylor.
Karnes City, Karnes County, Tex.	1	4 p.m.	*1½	8			200	4,800	Wind and hail	Heavy hail (damage \$3,000); 600 acres of cotton, corn, flax, maize, and sudan grass damaged.
San Angelo, Tom Green County, Tex.	1	4 p.m.	*2	4			25,300		Hail	Autos damaged, windows broken, and baby chicks killed.
Cherokee County, Kans.	1	4:30 p.m.			1				Electri- cal	13-yr. old girl died 30 minutes after being struck by lightning in yard during mild thunderstorm.
Gettysburg- Mechanics- burg, Pa.	1						See remarks		Rains	Persistent heavy rains end of April raised ground water levels so that scores of cellars were flooded and motorists on several roads had to drive through water on May 1.
Walhalla, S. C.	2	During night			1				Electri- cal	Man killed by lightning.
Taylor, Wil- liamson County, Tex.	2	1:30 p.m.	*2	6				1,250	Hail	Cotton and corn damaged 6 miles northwest and 4 miles southwest of Taylor.
Edison, Ga.	2	Afternoon	Local	Local				500	do	Hailstones, ranging from 1/8 to 1/2 inch in diameter, fell about 30 minutes in and near Edison. Cotton damaged in 10-acre field just outside town limits.
Tellulah, La.	2	4:30 p.m.					Minor	Consider- able	do	
Jay (4 miles west of), Delaware County, Okla.	2				2				Electri- cal	2 construction workers who took shelter under a tree killed by lightning.
Idaho, southern portion	3	Afternoon and evening					See remarks		Winds	High winds reported from such widely scattered points as Atlanta, May, Shoshone, Springfield, Pocatello and McCammon. Near Atlanta power poles torn down; hundreds of trees, many of them very large, toppled; some 30 miles of Forest Service telephone line blown down, and iron roofing blown off some buildings. Near May Ranger Station cinder block building and 2 frame buildings wrecked and 3 derricks upset and damaged. Pocatello reported light damage to roofs and trees. Dust storms in Snake River Valley. Thunderstorms at several points.
Americus (near), Ga.	3	5:09-5:57 p.m.	*5	8			25,000	100,000	Hail and wind	Very heavy damages to crops and moderate to heavy damages to property between Americus and New Era Community, affecting an area of about 40 square miles. Size of hail up to 1-3/4 inches in diameter. Hail battered many crops, with practically total destruction over about 3,600 acres; a considerable number of windows broken, roofs damaged, and other miscellaneous property losses. Little or no damage from wind.
Butte, Mont.	3	9 p.m.					15,000		Wind	Wind during a thunderstorm toppled over radio towers of station KXLF.
Moline area, Ill.	5	3:30-5 p.m.			1		5,000		Electri- cal	Lightning struck Moline generating plant, cutting off industrial power for nearly 2 hours. 5 power cables also damaged. A lightning strike resulted in 1 death at Lyndon and in a residence fire at Andover.
Along Ohio River north of Wheel- ing, W. Va.	5	4-4:30 p.m.					5,000		Rain and hail	Basements and business houses flooded in north Weirton, and mud and debris from hillsides washed into city streets and into newly dug basements of homes under construction.
Delphi, Ind.	5	P.m.					000		Wind	Trees blown down upon automobile and service station.
Collegeville, Ind.	5	6:30 p.m.					850		do	Trees and 2 or 3 buildings damaged.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

MAY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Miami County, Ind.	5	8:30 p.m.					\$20,000		Wind, rain, and electrical	Trees, neon signs, TV antennae, power lines, etc., damaged mostly by wind.
Springfield, Ill.	5	9:40 p.m.					1,000		Thunder- storm	Gusty winds in connection with a thunderstorm blew a large display sign down upon a used car lot, damag- ing 9 parked cars. Considerable damage to trees and windows also occurred.
Sanderson, Terrell County, Tex.	5		*2	15			3,000		Hail	200 sheep killed; no crops in this area.
Pennline, Pa.	5						See remarks		Electri- cal	Barn struck by lightning and burned.
Pennsylvania forests	5-7						See remarks		Forest fires	Dry weather rapidly spread a series of forest fires throughout Pennsylvania mountain sections, with thousands of acres being burned over before fires were brought under control. Much property threat- ened; very little damage to buildings reported, due to prompt attention by district foresters.
Lake Placid, N. Y.	6	2 p.m.	200	5	0	0	Several thousand	\$ 0	Tornado	A small tornado with funnel-shaped cloud passed over Lake Placid village and lifted a waterspout in Mir- ror Lake 50 to 100 feet high. Windows broken, porches and roofs torn off, and trees uprooted and broken.
Reno County, Kans.	6	Afternoon					500		Electri- cal	Valuable registered Hereford cow killed by lightning.
Dickinson County, Kans.	6	Afternoon					800	0	do	4 cows in northwestern part of County killed by lightning. Power services interrupted in several towns.
Kiowa Coun- ty, Kans.	6	Evening						See remarks	Hail	In strip approximately 2 miles wide from southern border northeastward to near center of County, hail damaged wheat up to 50 percent.
Pratt Coun- ty, Kans.	6	Evening					500		Electri- cal	In northwestern part of County 2 cows killed when struck by lightning.
Taylor, S. C.	6	6 p.m.				1			do	Man injured by lightning strike.
Savannah (near), Ga.	7	2:30-5:30 p.m.	1,760	Short		1	1,000	500	Wind, hail, and electri- cal	Struck in local area of Chatham County about 12 miles southwest of Savannah. Hail mostly 1/2 to 3/4 inch in diameter, while high winds at one time reached near gale force. Most of damage due to high winds which blew off parts of roofs from several build- ings, tore loose a porch, landing it on top of a house, and broke or blew over many bamboo canes of 40 to 60 feet in height. Severe lightning caused power failure.
Gentry Coun- ty (south- western portion), Mo.	7	4-4:30 p.m.	400	1½	0	0	°150	°	Tornado	Tornado about 3 miles north of King City, evidently formed by union of 2 funnels, demolished 1 barn. Bales of hay broken up and strewn about.
West Mem- phis, Ark.	7	4:30 p.m.	200	**800		1	25,000		Wind, and thunder- storm	Roof of new high school building blown off; 4 houses destroyed, 14 damaged; 6 other buildings destroyed, 3 damaged.
Cheyenne, Sherman, Thomas, Lo- gan, Sheri- dan Coun- ties, Kans.	7-8	11 p.m. to 1 a.m.	*1 to 5	125				1,066,000	Hail	Hailstorm which began north of Idalia, Colo., moved into southwestern Cheyenne County, Kans., about 11 p.m. It advanced southeastward, and apparently divided into 2 strips:—(1) From southwestern Chey- enne County across northeastern Sherman and Thomas Counties and into Sheridan County just south of Hoxie. (2) Southeastward across Sherman and Logan Counties. Damage to wheat extensive in limited areas of all 5 counties.
Idalia and vicinity, Colo.	7		*8 to 10	40			1,000	50,000	do	
Russell County, Kans.	8	Early a.m.					1,200		Electri- cal	Fire, started by lightning, burned oil field tank battery containing 350 barrels oil.
Saline Coun- ty, Kans.	8	6 a.m.					2,000		do	Barn with contents of hay and kafir corn burned to ground, 5 miles south of Salina Municipal Airport, after being struck by lightning.
Dickinson County, Kans.	8	6 a.m.					4,000		do	Losses resulted from 2 strokes of lightning in an early morning storm:—(1) Country schoolhouse south- east of Abilene burned to ground. (2) Saddle pony and steer killed on farm southwest of Abilene.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

MAY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Hat Creek (near), Wyo.	8	Noon	100	2	0	0	Slight	\$ 0	Tornado	Tornado hit in open range country. Only damage to property was to fences. No buildings in path of storm.
Stratton (12 miles north- east of), Colo.	8	1:30-1:35 p.m.	200	**400	0	1	\$11,300	500	do	Storm completely destroyed large barn, and other farm buildings; damaged home, trucks, and farm machinery. Several cows, calves, hogs, and chickens killed. One man slightly injured when picked up and carried a short distance by twister.
Corozal, P.R.	8	2-10 p.m.					3,000	30,000	Rains	See storm in P. R. on May 1.
Potter (south of), Nebr.	8	Afternoon			0	1	Consider- able	Minor	Tornado	One set of farm buildings destroyed.
Bazine, Ness County, and Pawnee and Stafford Counties, Kans.	8	5-11 p.m.	*2 to 4				500	85,000	Hail	Hail fell in several areas from northwestern Lane County east-southeastward through Ness and Pawnee and into Stafford Counties. Areas hardest hit were: (1) North of Healy in strip 1½ to 2 miles wide where farmhouse windows broken and wheat damaged. (2) From south of Bazine in Ness County across Pawnee County southeastward in strip up to 4 miles wide with property damage in Larned and other towns and light wheat loss. (3) 2-mile wide strip in Stafford County in St. John area with some wheat and property damage.
Watova (near), No- wata Coun- ty, Okla.	8	Evening					2,500		Wind	Large hay barn demolished; another barn damaged.
Coffee Coun- ty, Kans.	8	8 p.m.					16,000	Light	Hail	Hailstones as large as baseballs shattered roofs in LeRoy and limited area to east and southeast.
Shawnee County, Kans.	8	10:30 p.m.					500		do	Large hailstones in southeast section of Greater Topeka caused numerous instances of small damage to roofs and windows. Smaller hail general over City.
Chouteau and vicinity, Mayes Coun- ty, Okla.	9	Midnight- 5 a.m.					500		Wind	Several plate-glass windows blown out; roofs damaged.
Ottawa Coun- ty, Okla.	9	1:30-2:30 a.m.					41,000		Wind and electric- cal	Extensive damage at mine west of Quapaw where lightning struck and burned out 2 transformers; compressor house burned, conveyor damaged; loss estimated at \$40,000 electrical, included in total. Minor wind damage throughout County estimated at \$1,000 to roofs, trees, and signs.
Lares-Hatillo area, P.R.	9, 10	2-6 p.m.					5,000	20,000	Thunder- storm	See storm in P. R. on May 1.
Eastern Mar- ion County to Shirley, Hancock County, Ind.	9	5:45 p.m.	35	15 to 20	0	0	55,000	0	Tornado	Uprooted trees, severely damaged roofs, destroyed several outbuildings, picked up stepping stones, and picked up truck and carried it 150 feet. Storm moved east-northeastward along NYC RR to Shirley, but skipped some areas. Loud roaring heard and a distinct funnel observed.
Vega, Old- ham County, Tex.	9	6 p.m.	*3	25			10,000	300,000	Wind and hail	Wind damage, \$4,000; hail damage, \$306,000. Hailstones reported up to 3 inches in diameter.
Lawrence County, Ohio	9	7:30 p.m.					See remarks		Hail	250 homes and 50 other buildings damaged.
Kanawha County, W. Va.	9	7:30- 11:30 p.m.					Several thousands. See re- marks		Electric- cal, wind, rain and hail	At West Virginia State College at Institute roof blown off of 1 building and hurled against a brick fire-wall, smashing down about 50 feet of fire wall. 2 radio stations forced off air when lightning damaged their transmitting powers. Power lines blown down. Backwaters from sewers caused flooding of street intersections. Store signs and lights damaged by hail.
DeQueen, Ark.	9	7:30 p.m.	*4				300,000	7,500	Hail	Principal damage in DeQueen and surrounding country within radius of about 4 miles. Extensive damage to roofs, glass, and automobiles. Water damage to contents of buildings suffering roof damage. Spotted damage to young field crops, gardens, and berries.
Lubbock, Tex.	9	8:30 p.m.					5,000		Wind and hail	90 m.p.h. gusts. Brick wall blown down, cars damaged, and plate glass broken.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

MAY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Mineral Springs area, Washington County, Ark.	9	11 p.m.	800	15			\$15,000	°	Hail, and wind	Extensive damage to roofs and brooder houses; 5,000 baby chickens killed. Corn, strawberries and gardens damaged. Average size of hailstones 1 inch diameter; largest reaching 1-1/2 to 2 inches.
Little Rock, Ark.	9	11:30 p.m.					10,000		Wind, and rain	Severe damage to power distribution lines; several store windows damaged in North Little Rock.
Louisville, Ky.	9						5,000		Electrical	2 homes struck by lightning.
Bradley County, Ark.	10	2:30 a.m.	*20				1,000	\$100	Wind, and hail	Some damage to small houses and buildings. Principal crop damage was to tomatoes. Storm moved northeastward. Almost entire County affected to some extent.
Louisville and Bethel and Oak Grove Communities, Lafayette County, Ark.	10	5 a.m.	*8				10,000	100,000	do	Damage to roofs and buildings. Extensive damage to crops. Path of storm northeastward.
Stamps, Ark.	10	5 a.m.					See remarks	See remarks	do	Some buildings damaged. Some corn beat to ground by hail.
Columbia County, Ark.	10	5 a.m.					29,000	10,000	Wind, hail, and rain	Principal damage between Magnolia and McNeil. Storm progressed northeastward. Wind and hail caused extensive damage to buildings and killed 2,000 head of poultry. Heavy crop damage by rain, hail, and wind.
Bossier, La.	10	5 a.m.					5,000	Minor	Wind and hail	Area near Bodcau Dam and fire tower.
Schuler, Morning Star, and Knowles Chapel, Union County, Ark.	10	5:30 a.m.	1,760	40		1	30,025	100	Wind	Between 8 and 10 houses destroyed, 5 extensively damaged, several others damaged. Many trees blown down. Some minor damage to hay and corn. Some chickens killed.
Calhoun County, Ark.	10	6 a.m.					2,000	100	Wind, and hail	Roofs of numerous buildings damaged by wind. Scattered reports of hail. Practically entire County affected. Storm moved northeastward.
Lake Village, Ark.	10	6 a.m.	600				10,000		Wind	Damage limited to town of Lake Village and an area extending 1 mile west of town. Limbs blown off trees; buildings and automobiles damaged. One stone block building under construction destroyed.
Scott and Cleveland, Bolivar County, Miss.	10	8 a.m.		30		2	60,000	20,000	do	3 buildings destroyed and 85 damaged.
Lowndes County, Miss.	10					1	25,000	10,000	do	5 buildings destroyed and 9 damaged.
Knoxville Airport, Tenn.	10	9 a.m.				1	50,000		Thunder-storm	The fastest mile, 59 m.p.h. from southwest, was highest ever recorded for 1 minute for month of May. In Knoxville and vicinity, roofs torn off, trees twisted off, and power and communication lines blown down. Some plate-glass windows blown in. Damage extended to nearby counties.
Fayette County, Ala.	10						200,000		Tornadoes	Buildings unroofed; plate-glass windows broken; large oak trees blown down. 3 separate and distinct tornadoes struck at almost identical time; 3 paths clearly shown; typical funnel clouds observed moving northeastward; roar heard by many people. Utility services disrupted.
Covin Community	10	9-10 a.m.			0	0				
Gaines Ridge	10	9-10 a.m.			0	0				
Fayette	10	9:55 a.m.	50	1/4	0	0				
Marion County, Ala.	10	9:30 a.m.					1,000		Wind	6 homes damaged; 3 farm buildings damaged.
Fayette County, Ala.	10	A.m.					50,000		do	150 homes damaged; 1 farm building destroyed and 100 damaged.
Walker County, Ala.	10	A.m.					30,000		Wind and hail	44 homes damaged; 25 farm buildings damaged. Trees uprooted, many 2 to 4 feet in diameter, and some blown against dwellings. Small hail.
Newport, Cocke County, Tenn.	10	9:45 a.m.		5 to 6	2				Electrical and wind	2 persons were drowned when boat overturned in lake, during storm.

See footnotes at end of table.



# SEVERE STORMS

Table 4—Continued

MAY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Johnson City, Sullivan County, Tenn.	10	10-11:30 a.m.					See remarks		Electri- cal, wind and hail	Several trees uprooted. Light hail accompanied storm.
Anderson County, Tenn.	10								do	
Madison, Rutherford, Polk, Union, Mecklenburg, Halifax, and Greene Coun- ties, N. C.	10	10 a.m.— 6 p.m.					\$50,000	\$100,000	Electri- cal, hail, wind, and rain	Storm conditions over much of State. Estimates cover only those areas heard from.
Halifax Coun- ty, N. C.	10				0	0	See remarks		Tornado	Red Cross reported 1 home destroyed and 6 damaged; 10 families affected.
Bertie Coun- ty, N. C.	10				0	6	See remarks		do	Red Cross reported 1 home and 12 other buildings de- stroyed, 7 other buildings damaged; 10 families affected.
Greenville (southern portion), Spartan- burg, and Union Coun- ties, S. C.	10	2-5 p.m.	*20	90	2	4	25,000	200,000	Tornado and wind	Thunderstorms arose out of passing squall line. Ap- parently a small tornado struck in Woodruff, Spar- tanburg County, destroying house and 2 smaller structures, but no injuries or deaths reported. The 2 fatalities occurred near Spartanburg; injuries were scattered. Practically all crop damage was to peaches in Spartanburg County where about 200 car- loads destroyed.
Floyd Coun- ty, Va.	10	4-6 p.m.	100	25			5,000	2,000	Wind, and hail	Damage in spots along a northeastward-southwestward line through County. 1 barn blown down. Much tim- ber uprooted. Vegetable gardens damaged by hail.
Cullman Coun- ty, Ala.	10	P.m.					5,000		Wind	30 homes damaged; 30 farm buildings destroyed and 75 damaged.
De Kalb Coun- ty, Ala.	10	P.m.					2,000		do	10 homes damaged; 10 farm buildings destroyed and 19 damaged.
Montgomery, Ala.	10	8:30 p.m.					125,000		Electri- cal	Church struck by lightning.
Vaughn Road, Montgomery County, Ala.	10	8:30 p.m.					1,200		do	4 cows killed by lightning.
Ironwood, Mich.	10th- 11th						See remarks	See remarks	Snow	Over 8 inches of heavy snow broke tree branches which in turn broke utility wires. Apple trees in full bloom suffered broken branches. Other fruit damaged.
Barnwell and Orangeburg Counties, S. C.	11	2-4 a.m.	400	45	0	0	3,000	3,000	Tornado, wind, and hail	Thunderstorms from same synoptic situation as Green- ville, Spartanburg, and Union Counties. While no tornado was actually seen, type of damage encountered indicated clearly that tornado had dipped several times in its path between Blackville and Cameron. Hailstones, size of buckshot, observed at Black- ville. Movement appeared to be northeastward.
Alapaha, Ga.	11	7:20 a.m.	200	5	0	10	750,000	Light	Tornado	Tornado of considerable intensity moved northeastward through Alapaha; traveled through Alapaha (3/4 mile) in less than 2 minutes, causing great destruction of property. Damages occurred extensively in town, with heavy to total losses to town water tank, 32 build- ings including school buildings, 20 automobiles, and other miscellaneous property. More than 1,000 large trees blown down, blocking streets and tearing down utility lines.
Jackson- ville, Fla.	11	11:30 a.m.	*2	15		3	75,000	200 (Livestock and Poul- try)	Wind	Severe thunderstorm moved over Jacksonville from westerly direction, accompanied by strong, gusty, surface winds reported as tornadic in some locali- ties. 1 small home destroyed and 50 other homes suffered varying degrees of damage. Damage to homes in many cases due to falling trees. Several plate- glass windows broken. Winds in gusts up to 50 m.p.h. noted at Imeson Airport about 7 miles north of down- town area. Property destruction indicated severest portion of storm passed through southern portion of city and eastward toward Mayport.
Washington, D. C.	11-12	8 p.m.— 4 a.m.					500		Electri- cal and wind	Numerous trees and wires blown down. Utility pole damaged by lightning and fire.
Alexandria, Va.	11-12	8 p.m.— 4 a.m.					1,400		do	Several trees blown down; 1 house unroofed and a house trailer overturned.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

MAY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Baltimore, Md.	11	P.m.	*3	5		1	See remarks		Thunder- storm	Wind felled trees, damaged automobile tops, ripped roofs from 4 houses, and knocked down electric wires, trolley-lines, etc. Several trees crashed onto tops of parked autos, or onto roads, causing brief traffic tie-ups. Woman injured by broken window glass, as she watched storm. Store window panes smashed in several parts of City.
Fairbanks, Alaska	12	11-11:05 a.m.	13	**500			\$500		Whirlwind	A whirlwind, larger and more intense than most observed in Fairbanks area, tore roofing from 2 houses and damaged a pick-up truck; box thrown 35 feet. Whirlwind started near Front Avenue of Graehl and traveled to First Avenue and Clay in Fairbanks.
Cheyenne County (northern portion), Nebr.	13	Evening			0	0	Consider- able	Minor	Tornado	Set of farm buildings and an automobile badly damaged.
Idaho, south- central and southeast- ern portions	14	Late af- ternoon and evening					See remarks		Winds	High winds caused some damage to trees and outbuildings. Dust storms in some localities. Winds to 48 m.p.h. reported at Twin Falls, 50 m.p.h. at Preston, and gusts to 65 m.p.h. at Springfield.
Mt. Pleasant (6 miles east of), Iowa	14	6-6:15 p.m.	400	1	1	1	10,000	See remarks	Wind, hail and electric	Buildings on 3 farms damaged; trees uprooted; damage to crops by hail 1/4 to 3/4 inch in diameter and by heavy rainfall not estimated. Farmer 10 miles southeast of wind-damage area killed by lightning. Another injured when elm tree blown over on him. Light property damage also in Burlington.
Gladstone area, Ill.	14	6:15 p.m.			1		\$5,000		Electri- cal, wind, and hail	Fatality occurred near Gladstone when lightning struck youth driving tractor. High winds and hail accompanied thunderstorms, causing considerable damage to roofs, small farm buildings, and television antennae. Hail caused some damage to corn.
Cheyenne County (western portion), Nebr.	15	2-3:15 p.m.	Vari- able	Vari- able			Minor	Consider- able	Hail	Damage over several sections to wheat crop ranged from slight to major.
Kersey (3 miles southeast of), Colo.	15	2:04-2:20 p.m.	150	2	0	4	10,000	\$ 0	Tornado and hail	Black funnel cloud first observed at 2:04 p.m. at a point southeast of Kersey. It moved in a circular counter-clockwise direction and disappeared to southwest at approximately 2:20 p.m. Light, ineffective hail with stones 1/8 to 3/8 inches in diameter accompanied tornado. Damage limited to small farm houses and buildings. Some poultry killed.
Pineville and vicini- ty, W. Va.	15	2:15-2:30 p.m.							Hail	Hailstorm reported "worst in history of Wyoming County".
Ellis Coun- ty, Okla.	15	4-6 p.m.	*3				3,000		Wind	Several barns unroofed, and a few small farm buildings blown down.
Dundy Coun- ty, Nebr.	15	8 p.m.	Vari- able	15			Minor	25,000	Hail	Storm moved southeastward.
Sherman Coun- ty, Kans.	15	10 p.m.	*3 to 4						do	From state line 1 mile south of Kanorado eastward hail fell in 3-4 mile strip across County. Wheat damage extensive in local areas.
Sedgwick County, Kans.	15	Night					2,300		Electri- cal	Lightning which struck stored alfalfa seed in feed store in Wichita caused smoldering fire, resulting in loss of \$2,000 worth of seed and \$300 damage to building.
Hamilton, Mont.	15						Some		Snow	Broke trees and shrubbery. Some damage to telephone and power lines.
Stevens- ville, Mont.	15						Some		do	Damage to trees.
Palmyra (southwest of Marion County, Mo.	16	4:30 a.m.					3,000		Electri- cal	Barn destroyed by fire, along with 500 bushels of corn and a new grain drill.
Box Elder, Weber, and Davis Coun- ties, Utah	16	Morning					10,000 to 12,000. See remarks	See remarks	Winds	As is usually the case, these winds blowing out of the canyons affected only the canyons themselves and the area immediately adjacent to the canyon mouths along the bench of the Wasatch Range. At 7:30 a.m. when Salt Lake City had a southwest wind of 15 m.p.h. Hill Field reported an east wind of over 60 m.p.h. with gusts up to 95 m.p.h. One of best fruit-

See footnotes at end of table.



# SEVERE STORMS

Table 4—Continued

MAY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Box Elder, Weber, and Davis Coun- ties, Utah (Cont'd.)	16									producing areas in State suffered some wind damage. Damage to a few barns, a few other buildings, and some light aircraft at Ogden Municipal Airport may not exceed \$7,000. Utah Power and Light Company facilities suffered damage to transmission lines, transformers, etc., amounting to several thousand dollars.
Wyoming, southwest- ern portion	16	Afternoon and evening					\$70,000	\$100,000	Wind and snow	Storm affected entire southwestern portion of State. Property damage confined principally to broken telephone and light poles, demolished small buildings, and some damage to automobiles. Snow accompanying wind caused serious losses to young lambs and newly shorn sheep.
Roosevelt (near), Kiowa Coun- ty, Okla.	16	5:30-6:45 p.m.	*4	12				25,000	Hail	4,000 acres of wheat damaged 50 to 70 percent.
Pawnee Coun- ty, Okla.	16	6-6:30 p.m.				1	500	10,000	do	Hail damage on several farms. Several windows and automobiles damaged.
Geary (2 miles west of to 4 miles north of), Blaine Coun- ty, Okla.	16	8:30 p.m.					5,000	5,000	Hail and wind	Several farm sheds and barns blown over or damaged by wind; estimated loss \$5,000. 5 to 15 percent hail damage to wheat; estimated loss \$5,000.
Hitchcock County, Nebr.	16	Evening	Spot- ted	Spot- ted			Minor	15,000	Hail	About 750 acres of wheat damaged.
Chautauqua County, Kans.	16	8:30 p.m.			1				Electri- cal	Man struck by lightning and killed near Sedan as he was coming from field on tractor.
Vernon, Wil- barger County, Tex.	16	9 p.m.	*1½	10			1,000	80,000	Wind, hail, and electrical	Lightning, \$1,000 damage; hail, \$80,000. Wheat damage heavy. Cotton damaged in varying degrees.
Reno County, Kans.	16	9:30 p.m.	1,760	10			7,500	50,000	Hail	Heavy hail with stones size of walnuts pounded a strip in northwestern Reno County, moving north-eastward. Drifts of hailstones 6 to 8 inches deep noted 30 minutes after storm.
Antlers (near), Pushmataha County, Okla.	17	4:15 a.m.			0	0	0	0	Tornado	Tornado did not touch ground; observed moving eastward by 2 reliable eye-witnesses.
Southwestern Oklahoma especially Comanche County	17	Afternoon and evening					0	10,000	Rain	Heavy rains washed out 35,000 to 40,000 acres of cotton. Torrential rains of near 7 inches at Lawton. One family near Lawton isolated by high water. Flooding threatened downstream on Beaver and Cow Creeks, especially near Waurika.
Headrick (near), Jackson County, Okla.	17	5:30 p.m.					Minor	1,000	Hail	Wheat 50 percent loss over small area. Minor property damage to automobiles.
Lea County, N. Mex.	17	P.m.					°15,000	°	do	About 1,200 acres of cotton to be replanted. 100 acres of tomatoes 50 percent damaged. 200 ewes lost.
Alvarado, Johnson County, Tex.	17						100,000		Electri- cal	School destroyed.
Corsicana, Navarro County, Tex.	17						10,000		do	Destroyed barn and 200 bales of hay at State Orphans Home.
San Angelo, Tom Green County, Tex.	18						300,000		do	Fired a bowling center and 2 other business buildings.
Oberlin, Al- len Parish, La.	19	3 a.m.					1,000		Wind	
Orleans and Jefferson Parishes, La.	19	9 a.m.			1	2	50,000		do	Death and injury due to lightning strike; other injury from wind. 250 homes and buildings damaged by wind; 1 destroyed by lightning. Trees delimbed or uprooted; utility wires downed.
Schriever, La.	19	9 a.m.					Minor	Some	do	High winds damaged some corn.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

MAY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Bayou Grand Caillou, Terrebonne Parish, La.	19	9 a.m.	30	1	0	0	\$5,000	Some	Tornado	Very small, short-lived tornado hit community 2 miles southeast of Houma.
Central San Joaquin Valley (Ma- dera, Fres- no, Kings, and Tulare Counties, Calif.	19	4-7 p.m.				4	2,000	\$1,000,000	Winds and dust	Strong winds brought extensive damage to plum orchards and slightly less to apricots; grape canes whipped off; nut and fig trees blown down; barley shattered; and cotton plants cut by blowing sand. 2 airplanes and several automobiles damaged, as a result of the winds. 4 injuries due to automobile accidents on highway because of poor visibility resulting from blowing dust.
Harmony Sec- tion (4½ miles south of Man- ning), S.C.	19	4:30 p.m.			1				Electri- cal	Man killed by lightning.
Phelps Coun- ty (south- eastern portion), Nebr.	20	4-5 p.m.	*2	5			Minor	60,000	Hail	
Eastern Wi- chita and western Scott Coun- ties, Kans.	20	Evening						See remarks	do	Storm, moving southeastward, caused hail damage to wheat in Wichita County, apparently near Scott County line, and beat wheat into ground in Modoc area of Scott County.
Southwestern Republic and north- western Cloud Coun- ties, Kans.	20	Night					800	Small	Hail and electri- cal	Hail damage to crops in vicinity of Scandia in Republic County and loss of 7 head of cattle by lightning strike near Jamestown in Cloud County occurred in general showers over north-central Kansas.
Northern Meade and Clark Coun- ties and southern Ford Coun- ty, Kans.	20	Night	*3	13				192,000	Hail	Wheat losses of 30 to 100 percent in hail strip from 5 miles northeast of Fowler in Meade County southeastward past Minneola in Clark County, and extending northward slightly into Ford County.
Hyde County, N. C.	20				0	2	See remarks		Tornado	Red Cross reported 1 home destroyed and 7 damaged.
Sherman, Rawlins, Graham, Rooks, Os- borne, Smith, Mitchell, Cloud, and Washington Counties, Kans.	21	4-10 p.m.	*1 to 14				19,000	1,625,000	Hail and wind	Extensive storm area over northwestern and north-central part of State produced hail and wind damage to counties listed. One path in southeastern Sherman County dwindled out in Thomas County. 2 isolated strips of damage in Rawlins County. Hail driven by strong wind moved eastward across Graham and Rooks Counties from 4 to 5 p.m., occurring later at 7:30 p.m. in northwestern Mitchell County, continuing in lighter form to Cloud County southeastward and into southern Washington County by 10 p.m. Individual wheat losses to 100 percent. Property damaged by hail, \$8,000; by wind, \$1,000. Crop damage by hail, \$1,615,000; by wind, \$10,000.
Arvada, Colo.	21	4:40-4:50 p.m.			0	0	Light		Tornado	As disturbance did not reach ground, damage was light. Some birds killed when drawn into funnel.
Republic County, Kans.	21	7:30 p.m.	100	**300	0	0	5,400	0	Tornado, hail, and rain	Small tornado moving north-northeastward destroyed all buildings, except house, and killed 50 chickens and 6 small pigs on farm in southwestern Republic County. Small hail and rain accompanied storm. Tornadoic winds which destroyed small barn in Jewell County directly west may have been embryonic stage of same tornado.
Sedgwick County, Kans.	21	10:30 p.m.— midnight	*8	22		2	5,000	36,000	Hail and electri- cal	Hailstones up to size of golf balls pelted wheat west of Wichita. Lightning struck 2 places in Wichita:—A church where a hole was torn in roof; a house the roof of which was damaged and 2 sleeping persons injured.
Hammon (northwest of), Roger Mills Coun- ty, Okla.	21				1				Electri- cal	Farmer driving tractor killed by lightning.
Marshall County, Kans.	22	11:45 a.m.	880	25				See remarks	Hail	Spotted damage to wheat occurred from hailstones about ½ inch in diameter in south-central part of County. Individual losses amounted to 60 to 75 percent of crop.

See footnotes at end of table.



# SEVERE STORMS

Table 4—Continued

MAY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Marshall County, Kans.	22	11:45 a.m.	880	25				\$5,000	Hail	Spotty in character, hailstorm did extensive damage to wheat in various small areas in Frankfort and Bigelow communities.
Pawnee County, Nebr.	22	Noon	Spot- ted				Minor	1,000	do	Damage very spotted, mostly minor.
Montgomery County, Kans.	22	5-6 p.m.					See remarks		do	Local damage, mostly in town of Caney, to roofs, neon signs, automobiles, and greenhouse windows resulted from hailstorm with stones of irregular shapes, many as large as tennis balls.
Douglas, Leavenworth, Wyandotte, and Johnson Counties, Kans.	22	5:15 p.m.	440	22	0	13	\$250,000	10,000	Tornado and hail	Violent tornado struck first in northeastern Lawrence, destroying alfalfa dehydrator and causing other minor damage, then moved east-northeastward and dipped again to ground in southern Leavenworth County just north of Kansas River, extending into Johnson and Wyandotte Counties, ending 1½ miles east of Wilder. Funnel stayed close to ground even on leeward side of hills and apparently moved at rate of about 70 m.p.h. 12 houses destroyed, 14 damaged; 67 other buildings destroyed, 13 damaged; 20 cows, 1,200 chickens, 15 hogs, and 5 sheep killed. 11 miles of power lines and thousands of trees blown down.
Jackson County, Mo.	22	7-7:10 p.m.; 9 p.m.			0	0	1,000	0	Wind and tornado	A few houses, barns, and outbuildings damaged at Lake Lotawana. Funnel cloud seen 1 mile north of Lee's Summit at 9 p.m.
Kansas City, Mo.	22	Evening				6			Electri- cal	6 picnickers huddled under a tree injured by lightning, 1 requiring hospitalization for severe burns.
Cleveland, Pawnee County, Okla.	22	7:30 p.m.					2,041		Hail	Severe roof damage. Damage to 51 roofs.
Tillman County, Okla.	22-23	8:45 p.m.- 5 a.m.						10,000	do	Small damage to wheat in scattered areas in County, especially near Grandfield.
Grady County (southern portion), Okla.	22	11:30 p.m.	Nar- row	Short	0	0	500	0	Tornado	Barn damaged; moved about 25 feet.
Beckham and Washita Counties, Okla.	22-23	11:45 p.m.- 2 a.m.	*4	20			13,000	1,300,000	Hail, wind, and elec- trical	Hail 3 inches in diameter, heaviest in Port community. 50 to 100 percent of wheat destroyed. Some roofs damaged and cars dented. Estimated \$3,000 damage by hail to property, included in total. Hail damage of \$1,300,000 to wheat crop nearly ripe. Hail still drifted knee-deep in many places at noon next day. Estimated \$2,000 wind damage to buildings, included in total. Lightning struck a barn and fire burned it and contents with \$8,000 loss, included in total.
Geary (near), Blaine County, Okla.	23	Midnight- 2 a.m.						15,000	Hail	Up to 75 percent loss to wheat in area north of Geary.
Kingfisher and Logan Counties (from near Okarche to Cashion), Okla.	23	1:30-3:15 a.m.	*8 to 9	20 to 22		1	45,000	2,000,000	Hail and wind	About 100,000 acres of wheat and other small cropland affected. Severe hail in area from 6 miles west of Okarche to Seward. Total hail loss to crops, including near ripe wheat, estimated at \$2,000,000. Practically every roof in Okarche affected by hail; hail damage to roofs estimated at \$25,000. Woman in Cashion injured by flying glass. High wind damage especially in southwestern Logan County, with wind damage to property estimated at \$20,000. Tornado funnel reported in adjacent area in Oklahoma County near Edmond, but not confirmed.
La Crosse County, Wis.	23	2 a.m.					5,000		Wind	Line squall preceding thunderstorm. Trees blown across power and telephone lines, interrupting services for several hours. Estimated wind speed in excess of 60 m.p.h.
West Plains and vicinity, Mo.	23	2 a.m.					10,000	0	Wind, hail, and rain	New furniture company building severely damaged. Roofs of 2 stores blown off. Most of merchandise damaged by rain. Several farm buildings unroofed by high winds near Birch Tree in adjoining Shannon County. Several large trees blown down.
Oklahoma City, Okla.	23	2:30 a.m.	30	**50			2,000		Wind (tor- nadic)	Wind caused damage over local area on SW 2nd and Harvey Sts. Debris seems to indicate gusty wind caused damage; however, from localized damage and slight evidence of twisting, it is believed it might have been a tornado.
Oklahoma City, Okla.	23	About 2:30 a.m.				2	3,350		Electri- cal	Lighting struck a home; 2 occupants injured by resulting flames. Another home also struck by lightning, with minor damage.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

MAY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Cushing (near), Payne Coun- ty, Okla.	23	4 a.m.			0	0	\$25,000	\$ 0	Tornado, wind, and electrical	Tornado struck 4 miles northwest of Cushing, destroy- ing a farmstead with about \$2,000 damage. Gale-like wind near Cushing caused estimated damage of about \$20,000 to gasoline plant. 6 cows, valued at \$3,000, killed by lightning under tree in pasture.
Snyder (east of), Kiowa County, Okla.	23	4:30 a.m.	100	15	0	0	2,000	0	Tornado	Moved northeastward for about 15 miles, dipping down twice and destroying 2 barns.
Beckham and Washita Counties (especially in vicinity of Port), Okla.	23	4:40-5:30 a.m.	*4	10				100,000	Hail	Covered much of same area as preceding day; most of remaining crops destroyed.
Lawton, Co- manche Coun- ty, Okla.	23	4:45-5 a.m.	150	**600	0	1	150,000	0	Tornado	Several buildings damaged in Lawton as tornado trav- eled eastward over about 3 blocks.
Ft. Sill, Co- manche Coun- ty, Okla.	23	5-5:10 a.m.	200	Short	0	0	250,000	0	do	This tornado appeared to be almost concurrent with preceding tornado and occurred a few miles north- west. 4 warehouse buildings and 1 smaller struc- ture destroyed.
Tahlequah, Cherokee County, Okla.	23	Early morning			9	3	500		Electri- cal	Lightning struck house which burst into flames. 9 children inside were either killed by lightning or burned to death.
Vicksburg, Miss.	23	5:30 a.m.					500		Wind	Planes damaged slightly at airport.
Tishomingo, Johnston County, Okla.	23	8 a.m.		1/4			5,000		do	Damage to 2 homes.
Bear Mountain Tower to Eagletown, McCurtain County, Okla.	23	9-9:30 a.m.	*5	20			Consider- able		do	Much timber blown down.
Little River County, Ark.	23	10:05 a.m.	*25				5,000	0	Wind, and rain	Roofs of several buildings damaged; only slight crop damage. Storm moved northeastward, affecting al- most entire County.
Sevier Coun- ty, Ark.	23	10:30 a.m.	*12	35			4,000	2,000	Wind	Principal damage was at Horatio, and in southern half of County. Some minor damage at DeQueen. Several homes damaged. Crimson clover and small grains damaged. Peaches also sustained some damage.
Dierks, Ark.	23	A.m.					See remarks		do	High winds blew 10,000 square feet of roof off saw mill of Dierks Lumber and Coal Co., damaged two- thirds of building, and blew in some store windows.
Athens, Ark.	23	11 a.m.	200				500		do	Some damage to school, houses, and outbuildings. Trees uprooted.
Clark Coun- ty, Ark.	23	11:30 a.m.	100				2,500		do	Wind destroyed shed at dry kiln and damaged 3 other buildings of Gurdon Lumber Co., 3½ miles southwest of Gurdon. Some wind damage, mostly to trees, re- ported in other parts of County.
Magnolia, Ark.	23	11:55 a.m.	1,700			1	See remarks		do	Wind damaged an industrial plant on north edge of Magnolia.
Fort Wayne, Ind.	23	12:30 p.m.					500		do	Damage to parked aircraft.
Brown and western Bartholomew Counties, Ind.	23-24						70,000	30,000	Rain	Rain of 4.25 inches at Columbus and about 5.75 inches at Nashville within a period of less than 14 hours resulted in most severe flooding of small streams within memory. Hogs drowned, basements and first floors flooded. Several thousand dollars damage to manufactured goods stored in factory first floors, while awaiting shipment. Corn fields flooded and had to be replanted. At least 6 county bridges washed out.
Dumont, Iowa	23	1 p.m.	17	1/16	0	0	250		Tornado	Long tapering funnel moved northward. It unroofed town garage, knocked down telephone poles, and in- terrupted electric service.
San Angelo, Tom Green County, Tex.	23	2:20 p.m.	50	6	0	1	5,000		do	House damaged; a few chicken houses damaged.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

MAY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Brooksville (near), Fla.	23	2:30 p.m.			0	1	\$1,000		Tornado	Heavy rain and hail followed by tornado that wrecked 1 chicken house and damaged others, as well as killing a number of chickens. Storm turned a physician's car around several times on highway and caused injuries to him when thrown from car.
Grafton (near), Iowa	23	3 p.m.	Nar- row		0	0	3,000		do	Funnel cloud observed moving northeastward at 20 to 25 m.p.h. It demolished 1 barn, with minor damage nearby; a few chickens killed.
Union Par- ish, La.	23	3 p.m.	*2				1,000		Wind	Several buildings unroofed.
Winnfield and Winn Parish, La.	23	3:30 p.m.					10,000	Some	do	Buildings unroofed, trees broken, and utility lines downed.
Kalamazoo, Mich.	23	Afternoon					See remarks	See remarks	Wind, electric- al, and hail	Large barn blown down and 2 buildings burned as result of lightning. Hail damaged crops slightly.
Kansas, southwest- ern portion	23	4-5 p.m.						\$120,000	Hail	Scattered areas of hail with heavy damage in strips in northeastern Stevens County and northern Meade County and lighter losses in northeastern Wichita County, central Kearney County, and patches of eastern Finney County. Hailstones generally small, but ranged up to 1½ inches in diameter in Meade County.
Beckham County, Okla.	23	4:45 p.m.			0	0	0	0	Tornado	Funnel appeared between Sayre and Elk City, but did not reach ground.
Jackson, Miss.	23	6:30 p.m.			1				Electric- al	Youth killed by lightning, while riding bicycle.
Edwards and southern Pawnee Coun- ties, Kans.	23	6:30 p.m.	*1	7				10,000	Hail	Hailstones only ½ inch in diameter responsible for relatively light losses to grain in central Edwards County and also in extreme southern Pawnee County.
Phillips County (southwest- ern por- tion), Kans.	23	Evening						See remarks	do	About 7 miles west of Logan, pounding hail caused partial wheat losses on several farms.
Russell Coun- ty, Kans.	23	Evening					10,000	75,000	Hail and rain	Hail and flash floods combined to produce considerable property and crop damage in southeastern part of County. Hail damaged property \$2,500, crops \$50,000; flash flooding and washing damaged property \$7,500, crops \$25,000.
Electra, Wi- chita Coun- ty, Tex.	23	7:10 p.m.	*8	10			500	8,000	Wind and hail	Mostly hail damage; a few cars dented, plate glass broken.
Cordell (northwest of), Washita County, Okla.	23	7:30 p.m.	*2	4½				10,000	Hail	40 to 45 percent damage to wheat.
Brownsboro, Henderson County, Tex.	23	11:40 p.m.	30	**100	0	0	1,000		Tornado	Unroofed buildings; pulled plate glass out of buildings. Wind seemed to be suction from a vacuum.
Salina, Kans.	24	3:14 a.m.					1,350		Electric- al	Lightning struck a radio shop, starting a fire which resulted in damages of \$350 to building and \$1,000 to contents.
Palmyra (northwest of), Mo.	24	1-1:30 p.m.	2,000	4½			5,000	30,000	Hail	Growing crops completely destroyed in area hit. Wheat, oats, clover, fruit, and gardens a total loss. Corn and beans replanted. Property damage confined to roofs, windows, and automobiles.
Palmyra (south of), Mo.	24	4 p.m.					1,000		Electric- al	3 cows killed by lightning, a farm outbuilding destroyed by fire, and another damaged.
Bedford, Cuyahoga County, Ohio	24	4-4:05 p.m.	167 to 234	3/4 to 1	0	0	30,000	0	Tornado	Several observers reported passage of dark, funnel cloud without an attendant thunderstorm, hail or rain, although rain had preceded storm. Path of storm northeastward; first striking business structures on main downtown street and then passing beyond through residential area. Roofs damaged, signs and utilities destroyed, trees leveled, windows broken, and several garages demolished. A large plate-glass window on business frontage where storm first struck blown outward while other windows in path of storm blown inward.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

MAY 1951

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Belleville, Ill.	24	5:50 p.m.			0	0	\$10,000	\$1,000	Tornado and thunder- storm	Tornado moving northeastward struck runway area at Scott Air Force Base, damaging 14 aircraft. 1 small building partially demolished. High winds and hail resulted in some crop damage in surrounding area.
From Wash- ington County east- ward and principally in Balti- more, Md.	25	P.m.			2		15,000		Electri- cal and rain	Men swept by heavy rainwaters into storm sewer; another killed by truck in blinding rain. Basements flooded over City. \$15,000 damage done to church as it was swept by 6 feet of water. Barn and home struck by lightning. Parts of roads damaged; some highways closed due to water, from Washington County eastward onto the Delmarva Peninsula. Automobile swept off Bridge near Unionville.
Harrisburg area, Pa.	25	4-6 p.m.					See remarks		Rains	Heavy rains in New Cumberland area flooded church basement for first time in 25 years. Nearby inter- sections resembled lakes. Rainfall so heavy that cars pulled to side of road until it ended.
Alexandria, Va.	25	5:30-7:30 p.m.					2,500		Electri- cal, rain, and wind	House damaged by lightning and resulting fire; auto- mobile crushed by falling tree; streets and an underpass flooded.
Arlington, Va.	25	5:30-7:30 p.m.					5,000		do	3 houses damaged by lightning. Utility lines blown down. Much flooding of gardens and basements.
Washington, D. C.	25	5:30-7:30 p.m.					1,500		do	A circus cancelled their evening performance because of storm. Trees and utility lines blown down; streets and an underpass flooded.
Wilkes-Barre area, Pa.	25	Evening					See remarks		Electri- cal and rain	Lightning started 1 fire and toppled several tree limbs, interrupting power services in local areas.
Surry Coun- ty, N. C.	25						5,000	Slight	Hail and wind	Storm most severe in city of Mt. Airy, where it blew down trees, broke telephone and power lines, and damaged a few roofs.
LaFayette, Ala.	25						See remarks		Hail	Very heavy hail damaged crops considerably in some sections.
El Paso County, Tex.	26	Afternoon					5,000	do	do	1,666 acres of cotton affected near county line east- ward about 5 miles into Hudspeth County.
Sherman and Rawlins Counties, Kans.	26	4-6 p.m.	*5	60			See remarks	do	do	Scattered hail damage to wheat, mostly less than 50 percent, occurred along a strip from State line in southern Sherman County northeastward into Rawlins County.
Cheyenne County, Nebr.	26	5 p.m.	*1 to 3	.30	0	0	Some	600,000	Hail and tornado	Most damage to winter wheat; a few roofs removed by tornado. Crops total loss in center of damage area.
Meade Coun- ty, Kans.	26	5:45 p.m.			1				Electri- cal	Girl killed by lightning 20 miles southeast of Meade, as she was driving cattle into a pen.
Greeley, Wichita, and Scott Counties, Kans.	26	6 p.m.	*3	50				125,000	Hail	Moving southeastward, hailstorm with stones up to 1 inch in diameter caused varied amount of damage to wheat in northern Greeley County, across central Wichita County and in Scott County to near Scott City.
Meade and Clark Coun- ties, Kans.	26	6 p.m.	*5	8				160,000	do	Accompanied by wind of 50 m.p.h., hail damaged wheat up to 100 percent in a southwest to northeast strip along northern part of Meade-Clark County border. Path of storm only slightly south of one occurring 6 days earlier.
Cheyenne County, Kans.	26	7:45 p.m.					12,000		Electri- cal	Lightning set fire to new home near St. Francis, completely destroying it.
San Juan- Senturce area, P. R.	27, 28	1-3 p.m., 27th- noon, 28th					25,000		Thunder- storms	See storm in P. R. on May 1.
Corpus Christi, Tex.	28	1:17 a.m.					5,000		Wind	Due to passage of squall line. Winds registered up to 80 m.p.h. by American Smelter Co. Principal damage to plate-glass windows, outdoor advertising signs, and television antennae.
Rio Hondo, Cameron County, Tex.	28	5-6 a.m.		**500		4	2,000		do	3 poorly constructed frame houses shattered. An abandoned warehouse had about 1/5 of its roof re- moved by wind.
Middlesex County, Mass.	29	2-6 p.m.					1,000		Electri- cal and hail	Local thunderstorms swept across northeastern Massa- chusetts. In Concord, \$500 damage to a barn caused by lightning-set fire. Minor local damage of simi- lar nature to homes in Concord, Billerica, Woburn, Bedford, and Melrose.

See footnotes at end of table.



# SEVERE STORMS

Table 4-Continued

MAY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Bartow, Fla.	30	8:30 a.m.				1	Small		Electrical and wind	1 home struck by lightning. Small amount of damage to home and minor injuries to 1 person. Wind blew several trees down.
Winter Haven, Fla.	30	11 a.m.						Small	Thunderstorm	Hail with stones up to golf ball size stripped foliage from shrubbery. Considerable accumulation of hailstones in some sections of city.
Belleair Beach (near St. Petersburg), Fla.	30	Noon			0	0	\$2,500	\$ 0	Waterspout and tornado	Waterspout came ashore from Gulf of Mexico and removed portion of roof from apartment building. Other damage in vicinity of minor nature. Storm dissipated shortly after reaching land.
Cheyenne County, Kans.	30	6 p.m.				1			Electrical	Youth, struck by lightning while riding tractor, was burned severely on left arm and shoulder and temporarily paralyzed.
Salina-Enterprise area, Kans.	30	Evening	*6	25			2,500		Wind (tornado)	Winds, accompanying squall line, were strong enough from Salina to Enterprise to damage extensively a recreation park and Cathedral in Salina, buffet cars on highway, demolish barn, tear off roofs, and flatten windmills in Enterprise area. Some evidence of tornadic nature in winds, but no funnel sighted nor characteristic roar heard.
Jackson County, Kans.	31	1 a.m.					30,000		Electrical	Fire caused by lightning completely destroyed theater in Holton.
Washington and Yuma Counties, Colo.	31	4-4:30 p.m.						100,000	Hail	Damage to crops varies from nothing to total loss.

- Miles instead of yards.
- Yards instead of miles.
- Crop damage included with other property damage.



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

MAY 1952

The most significant flooding during the month occurred in the Central Valleys of California and in the Great Basin. Property damage in the Central Valleys was negligible but considerable damage was reported to cotton and barley crops in Tulare County in California. The floods in the Great Basin were generally the worst in history. Flooding elsewhere was mostly minor with some moderate flooding in the Missouri Basin.

**ATLANTIC SLOPE DRAINAGE.**—No damage resulted from the minor overflows on the Chemung River at Chemung, N. Y., on the 26th.

Near flood stage was reached on the Monocacy River near Frederick, Md., on the 26th due to heavy rain (3.3 inches) during the 48 hour period ending at 7:30 a.m. on that date. The lower Potomac reached a stage of 8.9 feet, 1.1 ft. below flood stage near Washington, D. C., on the 14th.

The lower Roanoke rose slowly to above flood stage at Weldon, Scotland Neck and Williamston, N. C., on April 30th from the general rains of April 25-28 with the crests occurring on May 2, 4, and 8 respectively. No flood damage was reported but the extended periods of flooding on the lower Roanoke interfered with normal logging operations, thereby resulting in some economic loss. Some minor flooding occurred on the Cape Fear River at Elizabethtown, N. C., on April 30 and May 1.

**UPPER MISSISSIPPI BASIN.**—The overflows in the Upper Mississippi Basin were a continuation of the severe floods which began early in April. Most of the crests occurred during April except in the beginning of May in the extreme lower portions.

(See the report for April in the previous issue of this publication for a complete report of the Upper Mississippi Basin Flood).

**MISSOURI BASIN.**—The East Gallatin River north and east of Belgrade, Mont., was out of its banks for a few days beginning on the 22d. Considerable damage was reported to crops in flooded area. This overflow was due to heavy rains over the Gallatin Basin during the first three weeks of May. The rain was especially heavy during the last 2 days. The channels were already nearly full from snow melt runoff before this rain began.

The James River remained above flood stage, from Huron, S. Dak., to the mouth, during most of the first half of May, but gradually fell below flood stage in the lower portion of the river, during the latter half of the month.

The Big Sioux River receded to within its banks at Akron, Ia., on May 1 after having been in continuous flood since March 29.

Heavy thundershowers in the Black Hills in Custer, Pennington and Laurence counties in S. Dak. on the 21st and 22d caused flash floods on several creeks in that area. Three to 6 inches of rain fell over Battle, Castle and Rapid Creeks during a period of 24 to 48 hours. The severest flooding was along Rapid Creek in Pennington County where about 100 houses were flooded. Roads and bridges, along Rapid Creek, were damaged extensively.

Heavy general rains during the afternoon and night of the 22d-23d caused local flooding in the Elkhorn River Basin in the Pierce and West Point areas. The precipitation during that period averaged near 2.25 inches over the drainage basins of the North Fork of the Elkhorn, over Logan Creek basin and over the central portion of the Elkhorn River Valley. A few stations reported precipita-

tion in excess of 3 inches, the heaviest reported was 4.16 inches at Lyons, Nebr., on Logan Creek.

Heaviest flooding occurred near Pierce, Nebr., from the 23d to the 25th, when about 900 acres of land along the North Fork were inundated.

**OHIO BASIN.**—At the beginning of the month, the Wabash River in Indiana was above flood stage at most points from Lafayette downstream and was still rising above the lower one-third of its length. Heavy rain on the 23d-24th caused severe flash floods along smaller streams. This storm brought one of the heaviest 24-hour rains of record at Nashville, Ind., where a total of approximately 5.75 inches of rain fell within a period of less than 14 hours. At Columbus, Ind., 4.25 inches of rain occurred within approximately the same period. Corn fields in the flash flood area were completely destroyed and had to be replanted. This area, however, was not very large. The West Fork of the White River rose to near or slightly above flood stage from Spencer downstream to Edwardsport, Ind., from the heavy rain (2 inches) on the 23d-24th. The Wabash River rose to 7 feet or more above flood stage from Wabash downstream to below Terre Haute, Ind.

**WHITE, ARKANSAS AND RED BASINS.**—The flooding along the White and Black Rivers in the White Basin was a continuation of the high water during April. Damage during May was negligible except for the loss of the use of Agricultural land adjacent to the streams.

The flooding in the Red Basin was a continuation of the April floods except for the slight flooding on the Sulphur River which was due to 3.5 to 4 inches of rain on the 17th and 18th.

**LOWER MISSISSIPPI BASIN.**—Slight flooding occurred on the Mississippi River at Caruthersville, Mo., between the 2d and 9th. No appreciable damage resulted.

**WEST GULF OF MEXICO.**—As the month began, the Sabine River was high but falling with only minor overflows occurring at Mineola and Gladewater, Tex. The heavy rains (2 inches) from the 18th to the 20th, caused minor flooding at Mineola. Additional heavy rain (2.75 inches) from the 23d to the 24th prolonged the overflow at Mineola and caused minor flooding at Gladewater, Tex. Damage was light.

Excessive rains during April caused the Trinity River to be above flood stage at Long Lake, Tex., at the beginning of the month. At Liberty, Tex., the crest was 0.2 foot below flood stage. Heavy rain (3.5 inches) on the 24th over Chambers Creek and the Trinity caused some overflow at Liberty, Tex.

Heavy rains of 2 to 7 inches over the Guadalupe Basin caused a major rise in the river at Gonzales and Cuero, Tex., and minor flooding at Victoria, Tex., on the 28th. The flooding in the Victoria area was caused by local rains and water from small tributaries entering the Guadalupe below Cuero as the flooding occurred there before the upstream water had reached that area. Rains in the Luling area and runoff from the San Marcos River caused the first rise at Gonzales and Cuero and the water from the upper portions of the Guadalupe caused a second rise in these areas. The damage caused by the flood was comparatively light.

Heavy rains over San Felipe Creek in the Del Rio, Tex., area on the 27th caused a local flood in that area. This creek flows through Del Rio. Considerable damage resulted from this flood.



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS—Continued

MAY 1952

Flood stages were exceeded at several stations on the Rio Grande and at Durango, Colo., on the Animas-San Juan river during the month of May due to snow melt in the mountains. The Martinson diversion dam on the Rio Grande about 10 miles north of the Colorado - New Mexico line broke about 7 a.m. on May 8th and released approximately 4,000 acre-feet of water in about 15 minutes. The Rio Grande was flowing near or slightly above flood stage at the time. A rise of approximately 3 feet to a crest of 11.25 feet above flood stage, was recorded at Embudo, N. M. Due to the widening of the river below Embudo and the resulting pooling of the relatively small volume of water released when the dam broke, the rise at downstream stations was not so great. No material damage resulted from the overflows.

**COLORADO BASIN.**—The annual spring runoff of mountain snows produced flood stages on the Gunnison River at Paonia and Delta, Colo. in May. The high stages were caused by the unusually heavy snows in the mountains feeding these rivers, combined with periods of well above normal temperature during the highest stages. The fact that the high runoff started unusually early and continued through a long period no doubt prevented considerably higher stages. The damage from the overflow was light to moderate. Damage was confined largely to small farms and orchards and small residences in the flats near the rivers, and to a few bridges and pipelines.

**GREAT BASIN.**—The floods which occurred in the Great Basin during the spring season were caused entirely by snow melt. The snowpack of the past winter in the mountains of northern Utah and northern Nevada was the heaviest in history. As an indication of its extent, in Utah, Silver Lake (Brighton) in Big Cottonwood Canyon in the Wasatch Mountains southeast of Salt Lake City during the latter part of May reported a total of 502 inches of snow with 46.8 inches of water equivalent since October 1. On March 20th the depth of snow on the ground was 129 inches, the deepest since records first began in 1916. At nearby Alta in Little Cottonwood Canyon total snowfall between October 1 and late March was 600 inches, with 60 inches water equivalent. A total of 156 inches of snow

on the ground was measured there on the 26th of March. With rising temperatures near the end of April, the snow at lower and intermediate levels began to melt and floods developed on the following Utah streams: Little Bear River, Ogden River, Weber River, Jordan River, Big Cottonwood Creek, Little Cottonwood Creek, Parleys Creek, Emigration Creek, City Creek, Provo River, Hobbie Creek, Spanish Fork River, Salt Creek, Sand Pitch River; and on the Humboldt River in Nevada. Flooding continued on northern Utah streams until early in May at which time the temperature began to fall and the rest of the month was marked by alternate above and below normal periods and below normal precipitation, thus retarding the runoff and permitting the higher snowpack to come out quite orderly. These favorable weather conditions through the middle of May, coupled with maximum irrigation, allowed an opportunity to lower reservoirs and acquire storage space. It also permitted time to strengthen dikes and do other control work. Streams ran fairly high through the month and some flooding continued but conditions at the end of the month were in general greatly improved as compared to those near the beginning of the month. By the time the temperature began to rise again near the last of May the high, deep snowpack was sufficiently far gone that the runoff on major streams, though large, could be picked up by the reservoirs, thus avoiding further serious flooding. In spite of the fact that additional serious flooding was avoided the steady, high runoff has filled Utah Lake to a point 3.3 feet above compromise level, the highest it has been in 30 years. Great Salt Lake is at the highest level since 1930.

In general the floods in this basin this season were the worst in history. This was due primarily to the record snowpack. They could have been worse than they were if it hadn't been for somewhat favorable weather in May. The following data extracted from Water Resources Review for May 1952 (published by U. S. Geological Survey and Water Resources Division of Canadian Dept. of Resources & Development) indicate a comparison between this spring's runoff in certain streams and that of previous maximum recorded:

Stream and place of determination	Period of record	Max. Flood Previously Known			Max. During Present Flood		
		Date	Stage (feet)	Discharge (cfs)	Date	Stage (feet)	Discharge (cfs)
Weber River at Echo, Utah	1927-	May 1950	6.96	2,580	May 13	7.34	3,040
South Fork, Ogden River near Huntsville, Utah	1921-	May 1936	5.45	1,780	May 3	5.97	1,880
Ogden River below Pineview Reservoir near Ogden, Utah	1937-	June 1945	6.74	2,290	May 3	7.77	3,000
Weber River at Plain City, Utah	1904-	June 1909	19.1	7,580	May 6	19.01	10,000
Diamond Fork near Thistle, Utah	1907-17	Aug. 1948	-	766	May 5	5.18	1,500
Spanish Fork at Castilla, Utah	1940-	Apr. 1952	4.77	1,300			
Jordan River at Salt Lake City, Utah	1919-25	May 1920	-	1,520	May 4	10.0	3,500
	1933-	Apr. 1952	10.0	3,500			
	1942-	June 1944	-	1,190	May 22	-	1,600



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS—Continued

MAY 1952

**CENTRAL VALLEYS OF CALIFORNIA.**—Above normal temperatures rapidly melted a record snow pack in the Sierra Nevadas causing high flows on the main rivers that lead into the San Joaquin Valley. No precipitation of any consequence occurred during the month of May, and high river stages were caused by snowmelt alone. Preliminary measurements show monthly discharges were about 120% of those in 1938, the most recent comparable year. Flooding prevailed primarily on the San Joaquin River below Mendota, Calif., and at the junction of the San Joaquin with the Merced and Tuolumne Rivers. The Kings, Kaweah, and Tule Rivers flowed into their natural drainage area, Tulare Lake, which is usually dry, to cause the greatest damage. No flooding took place until waters reached the floor of the Valley where levee failure and seepage inundated 1,000 acres of waste land 5 miles northeast of Dos Palos, 600 acres of pasture and diversified agriculture one mile south of Hub, and about 30,000 acres of cotton and grain in Tulare Lake Bed. Maximum diversions for irrigation were made reducing the area of inundation considerably.

River stages along the Lower San Joaquin River started several feet below danger stage at the 1st of the month and climbed steadily throughout the month to near danger stage at month's end. No reservoirs on the Upper San Joaquin or tributary streams to the Lower San Joaquin filled or spilled during the month. All were held at 1/2 to 2/3rds of capacity to provide storage for the expected snow melt runoff peak. Slow, steady increases in inflow were balanced by corresponding increases in outflow at all reservoirs. This water, coupled with diversions from the Kings River caused continued high stages along lower reaches of the San Joaquin. Seepage was severe along both sides of the San Joaquin and Lower reaches of tributary streams, particularly in the area from Newman to Lathrop. Sustained pressure against saturated levees, mostly of substandard construction, caused a number of failures by month's end. The first two breaks occurred in sand levees along the lower Mokelumne River with a sustained flow of 5,000 cfs. Most of the area flooded, about 700 acres, had already been flooded or saturated beyond use by seepage. On May 28 a break in a substandard levee on the Lower San Joaquin River upstream from Maze Road bridge flooded about 500 acres. A portion of this flooded area had also been flooded by seepage. Land was planted to cotton. Several families were evacuated by the Red Cross.

Of paramount interest in the Sacramento Basin this month was the filling of Shasta Reservoir, with flow over the spillway of Shasta Dam on May 15th for the first time since its completion. The amount of spill was slight, however, and was compensated by cuts in the power release to regulate flow downstream. Snow melt peaks were reached during the month on practically all tributary streams in this basin and the trend on all streams was downward at the end of the month. Overflow at Tisdale Weir ceased from the 5th to the 9th and resumed again between the 9th and 13th. No further flow occurred during the month, and no flow occurred at any of the upstream weirs. Overflow at Fremont Weir halted briefly on the 18th and 19th and stopped on the 23d and did not resume. At month's end, water level was more than 2 feet below the sill of the Weir. No flooding occurred in this basin, although damage from seepage was considerable along lower reaches of all rivers and streams and along the various bypass systems.

**COLUMBIA BASIN.**—The Snake River which was in flood at Weiser, Idaho, on April 30 receded to within its banks on May 1. There were only minor rises during the month and the stage at Weiser at the end of the month was 8.6 ft., 5.4 ft. below flood stage. Flooding continued on the Portneuf River in the vicinity of Pocatello, Idaho, during the 1st half of May, cresting on the 7th and 8th at a stage of 5.4 ft. on the Weather Bureau gage. The highest stage reached on Henry's Fork at Rexburg, Idaho, was 9.5 ft. on the 6th with a secondary crest of 9.25 ft. on the 23d. Some overflows were also reported north and northeast of Idaho Falls.

The flooding during the annual 1952 Columbia River freshet was confined to the Lower Columbia mostly from Washougal downstream and Willamette estuary. According to the U. S. Geological Survey, a peak flow of 561,000 cfs occurred at The Dalles, Oreg. on May 28. The crest at Vancouver, Wash. was 20.3 feet, or 5.3 feet above flood stage, on the 24th and 29th. The crest on the Willamette at Portland, Oreg. was 20.2 feet on the 24th. Livestock had been removed from pasture lands and the lower docks had been evacuated of all goods and merchandise well in advance of the rising water so there was no loss of property or damage from this source. Pastures in this flood plane are usually benefitted by overflowing as much or more than they are damaged so that no loss is attached to this flooding.



# FLOOD STAGE DATA

(All dates in May unless otherwise specified)

Table 5

MAY 1952

River and station	Flood stage	Above flood stages -dates		Crest *	
		From--	To--	Stage	Date
<b>ST. LAWRENCE DRAINAGE</b> <u>Lake Erie</u>	<b>Fl</b>			<b>Fl</b>	
St. Joseph: Montpelier, Ohio	10	26	28	11.4	27
Maumee: Fort Wayne, Ind.	15	25	26	17.5	25
<b>ATLANTIC SLOPE DRAINAGE</b>					
Roanoke:					
Weldon, N. C.	31	Apr. 30	4	31.6	2
Scotland Neck, N. C.	28	Apr. 30	5	28.9	4
Williamston, N. C.	10	Apr. 30	13	11.2	8
Cape Fear: Lock No. 2, Elizabethtown, N. C.	20	Apr. 30	1	20.7	Apr. 30
<b>MISSISSIPPI SYSTEM</b> <u>Upper Mississippi Basin</u>					
Illinois:					
Havana, Ill.	14	Mar. 18	8	16.6	Apr. 24
Beardstown, Ill.	14	Mar. 19	12	18.6	Apr. 28
Mississippi:					
Cassville, Wis.	17	Apr. 16	3	20.2	Apr. 24
Dubuque, Iowa	17	Apr. 14	7	22.7	Apr. 25
Clinton, Iowa	16	Apr. 16	9	20.9	Apr. 28
Le Claire, Iowa	12	Apr. 21	5	13.8	Apr. 28
Davenport, Iowa	15	Apr. 18	8	18.6	Apr. 28
Fairport, Iowa	14	Apr. 10	11	19.7	Apr. 27, 28
Muscatine, Iowa	16	Apr. 16	10	21.1	Apr. 28
Keithsburg, Ill.	12	Apr. 8	12	16.9	Apr. 28
Burlington, Iowa	15	Apr. 18	10	17.9	Apr. 28
Keokuk, Iowa	16	Apr. 21	7	19.0	Apr. 24
Gregory Landing, Mo.	15	Apr. 18	10	19.3	Apr. 24
Quincy, Ill.	17	Apr. 19	11	21.9	Apr. 25
Hannibal, Mo.	16	Apr. 10	13	21.7	Apr. 25
Louisiana, Mo.	15	Apr. 11	13	19.9	Apr. 26
Grafton, Ill.	18	Apr. 13	14	24.6	Apr. 30- May 1
St. Louis, Mo.	30	Apr. 25	6	33.9	1
Chester, Ill.	27	Apr. 13	10	34.4	1-3
Cape Girardeau, Mo.	32	Apr. 13	10	38.3	2
<u>Missouri Basin</u>					
James:					
Ashton, S. Dak.	15	Apr. 10	7	18.1 19.6	Apr. 13 Apr. 24
Huron, S. Dak.	11	Apr. 5	12	15.3 14.8	Apr. 15 Apr. 28
Big Sioux: Akron, Iowa	12	Mar. 29	1	19.8 17.7	Apr. 1 Apr. 10
North Fork of Elkhorn: Pierce (nr), Nebr.	12	23	25	13.0	24
Missouri:					
Hermann, Mo.	21	Apr. 13	4	21.1	Apr. 28
St. Charles, Mo.	25	Apr. 6 Apr. 13	Apr. 7 5	25.3 31.8	Apr. 6 Apr. 29
<u>Ohio Basin</u>					
West Fork: Edwardsport, Ind.	12	26	30	15.5	27, 28
Wabash:					
Wabash, Ind.	12	25	26	18.0	25
Lafayette, Ind.	11	25	29	18.9	26
Covington, Ind.	16	26	30	21.8	28
Montezuma, Ind.	14	26	**	20.3	29
Terre Haute, Ind.	14	27	**	16.8	30
Ohio:					
Dam No. 53, Mound City, Ill.	42	3	7	42.7	5
Cairo, Ill.	40	Apr. 13	9	44.1	5
<u>White Basin</u>					
Black: Black Rock, Ark.	14	Mar. 11	1	20.1	Apr. 14
White:					
Augusta, Ark.	32	Apr. 15	2	32.8	Apr. 17
Georgetown, Ark.	21	Apr. 14	5	23.2	Apr. 26
Des Arc, Ark.	24	Apr. 16	5	25.9	Apr. 27

River and station	Flood stage	Above flood stages -dates		Crest *	
		From--	To--	Stage	Date
<b>MISSISSIPPI SYSTEM--(Cont.)</b> <u>White Basin--(Cont.)</u>	<b>Fl</b>			<b>Fl</b>	
White: (Cont.)					
Clarendon, Ark.	26	Mar. 15	14	28.7	Apr. 29
St. Charles, Ark.	25	Mar. 18	16	27.1	Apr. 5
<u>Arkansas Basin</u>					
Poteau: Poteau, Okla.	24	Apr. 26	4	25.5	29, 30
<u>Red Basin</u>					
Ouachita: Camden, Ark.	26	Apr. 14	3	35.3 34.0	Apr. 18 Apr. 29
Sulphur:					
Hagansport, Tex.	38	19 24	20 27	40.9 40.0	19 24
Naples, Tex.	22	26	**	25.1	30
McCartney Bridge, Tex.	20	Apr. 13	13	27.5 31.6	Apr. 21 Apr. 29
Red: Alexandria, La.	32	Apr. 28	6	33.8	2
<u>Lower Mississippi Basin</u>					
Mississippi:					
New Madrid, Mo.	34	2	8	35.0	5
Caruthersville, Mo.	32	2	9	33.1	7
<u>Atchafalaya Basin</u>					
Atchafalaya: Morgan City, La.	6	9 10 12 15 21	9 10 12 20 25	6.3 6.5 6.0 6.5 6.4	9 10 12 19 23
<b>WEST GULF OF MEXICO DRAINAGE</b>					
Sabine:					
Mineola, Tex.	14	Apr. 13 23	June 1 4	18.3 17.5	Apr. 26 28
Gladewater, Tex.	26	Apr. 23 31	June 6 8	35.1 31.9	Apr. 29 June 3
East Fork of Trinity: Rockwall, Tex.	10	24	25	12.0	24
Trinity:					
Rosser, Tex.	26	24	25	28.0	24
Trinidad, Tex.	28	27	29	30.4	28
Longlake, Tex.	40	Apr. 29	2	41.3	Apr. 30
Liberty, Tex.	24	27	29	24.3	28
Guadalupe: Victoria, Tex.	21	28	28	23.4	28
Rio Grande:					
Labatos Bridge, Colo.	4	6 16 31	11 19 **	4.5	11
Embudo, N. M.	8	7	8	11.3	8
Espanola, N. M.	7	4 29	21 **	8.7	9
Albuquerque, N. M.	4	5 17	11 20	4.6	10
<b>GULF OF CALIFORNIA DRAINAGE</b> <u>Colorado Basin</u>					
Gunnison: Delta, Colo.	11	4 14	9 16	12.6 11.4	6 15, 16
Animas: Durango, Colo.	5	4 13 31	9 17 **	5.6	6
<b>PACIFIC SLOPE DRAINAGE</b> <u>Sacramento Basin</u>					
Sacramento:					
Tisdale Wier	45.5	1 10	5 12	46.4 45.9	3 11
Fremont Wier	33.8	1	17	35.0	1
<u>Columbia Basin</u>					
Snake: Heise, Idaho		3	8	8.2	5
Porteneuf: Pocatello, Idaho	3.8	Apr. 19	17	5.4	7, 8
Willamette: Portland, Ore.	18	17	31	20.2	24
Columbia: Vancouver, Wash.	15	10	31	20.3	24, 29

\* Provisional.

\*\* Continued at end of month.



# RADIOSONDE DATA

Average monthly values

Table 20

MAY 1952

ALBUQUERQUE, N. MEX. ( 837 MB.)				ATLANTA, GA. ( 980 MB.)				BIG SPRING, TEX. ( 923 MB.)				BISMARCK, N. DAK. ( 956 MB.)				BOISE, IDAHO ( 915 MB.)				BROWNSVILLE, TEX. (1012 MB.)				BUFFALO, N. Y. ( 987 MB.)							
Standard pressure surface (mb.)																															
Number of observations				Dynamic height				Temperature				Relative humidity				Number of observations				Dynamic height				Temperature				Relative humidity			
SURFACE	31	1,629	19.8	30	31	309	20.5	66	31	784	22.7	41	31	505	14.5	54	31	868	15.9	55	31	7	23.5	80	30	221	10.8	74			
1,000---	31	48			31	131			31	75			31	116			31	101			31	112	22.8	79	30	109					
950---	31	509			31	578	21.0	57	31	532			31	556	15.0	47	31	546			31	564	20.5	71	30	540	11.3	59			
900---	31	985			31	1,043	17.8	59	31	1,004	22.6	36	31	1,011	12.4	47	31	1,006	16.5	45	31	1,025	19.4	55	30	989	9.0	59			
850---	31	1,478			31	1,529	14.0	62	31	1,498	19.3	37	31	1,488	9.0	50	31	1,490	13.2	42	31	1,516	17.5	48	30	1,460	6.0	62			
800---	31	2,001	17.3	27	31	2,038	10.8	57	31	2,015	15.4	40	31	1,986	5.0	55	31	1,996	9.2	46	31	2,031	15.0	42	30	1,954	3.3	59			
750---	31	2,555	12.6	31	31	2,583	7.3	52	31	2,562	11.1	42	31	2,515	1.0	59	31	2,531	5.0	51	31	2,588	12.1	38	30	2,480	9.9	54			
700---	31	3,120	7.4	37	31	3,138	4.0	46	31	3,129	6.7	40	31	3,061	-2.5	54	31	3,086	-6.6	54	31	3,149	8.8	34	30	3,027	-1.6	46			
650---	31	3,727	2.0	45	31	3,741	-3.3	41	31	3,733	2.2	41	31	3,648	-5.2	49	31	3,680	-3.7	55	31	3,765	4.6	34	30	3,615	4.3	45			
600---	31	4,364	-3.6	51	31	4,376	-3.4		31	4,374	-2.8	44	31	4,267	-9.7	40	31	4,304	-7.7	49	31	4,405	-1.1	33	30	4,240	-7.7	47			
550---	31	5,045	-9.2	54	31	5,061	-7.8		31	5,059	-7.8	43	31	4,938	-13.9		31	4,979	-12.2	46	31	5,099	-4.7	31	29	4,914	-11.6	45			
500---	31	5,775	-14.4	49	31	5,794	-12.6		31	5,792	-13.0	37	31	5,651	-18.8		31	5,698	-17.2	41	31	5,839	-9.7		29	5,640	-16.4	47			
450---	31	6,568	-20.2	46	31	6,596	-18.3		31	6,588	-18.8		31	6,433	-24.6	36	31	6,481	-23.0	39	31	6,652	-15.1		29	6,428	-21.7	45			
400---	31	7,427	-26.6	38	31	7,458	-24.7		31	7,453	-25.6		31	7,271	-31.0	36	31	7,331	-29.5	39	31	7,526	-21.1		29	7,282	-28.0	46			
350---	31	8,377	-33.9		31	8,415	-32.0		31	8,406	-33.0		31	8,204	-38.1		31	8,269	-36.6	39	31	8,496	-28.4		29	8,227	-34.9	45			
300---	31	9,438	-42.1		31	9,485	-40.0		31	9,471	-41.5		31	9,248	-45.7		31	9,319	-44.4		31	9,583	-36.7		29	9,285	-42.9				
250---	31	10,648	-50.7		31	10,706	-49.1		31	10,683	-50.4		31	10,439	-53.5		31	10,517	-52.5		31	10,819	-45.6		29	10,492	-51.3				
200---	31	12,077	-57.6		31	12,140	-57.6		31	12,109	-58.2		31	11,861	-55.8		31	11,940	-57.3		31	12,269	-55.9		27	11,918	-56.9				
175---	31	12,917	-58.7		31	12,977	-60.5		31	12,944	-60.4		31	12,713	-53.9		31	12,784	-56.5		31	13,105	-60.7		27	12,764	-55.9				
150---	31	13,888	-58.9		31	13,933	-62.0		28	13,909	-60.4		31	13,702	-53.9		31	13,766	-55.4		31	14,054	-64.7		27	13,747	-54.9				
125---	31	15,027	-60.4		29	15,051	-63.4		27	15,042	-62.9		31	14,870	-54.9		31	14,926	-56.0		31	15,159	-67.3		26	14,906	-55.2				
100---	31	16,410	-62.0		28	16,416	-64.0		26	16,413	-64.4		31	16,291	-55.6		31	16,343	-56.4		31	16,495	-69.1		26	16,326	-55.9				
80---	31	17,792	-62.0		28	17,780	-64.0		24	17,773	-64.6		29	17,711	-55.9		28	17,762	-56.3		31	17,919	-69.3		23	17,745	-56.4				
60---	31	19,376	-60.1		25	19,376	-60.1		22	19,341	-61.4		31	19,540	-55.4		26	19,589	-56.6		31	19,759	-62.0		20	19,774	-55.1				
40---	31	20,719	-57.4		20	20,703	-57.0		21	20,683	-58.0		25	20,708	-55.8		25	20,747	-55.8		31	20,896	-58.4		19	20,742	-53.7				
30---	31	22,139	-54.2		17	22,129	-54.4		18	22,089	-55.1		19	22,136	-53.0		25	22,173	-53.7		31	22,109	-54.6		13	22,162	-52.4				
20---	31	23,979	-51.4		15	23,995	-51.0		14	23,948	-51.5		10	23,987	-51.1		22	24,024	-51.2		31	23,954	-51.5								
					5	26,641	-49.7		5	26,632	-47.7						11	26,627	-48.7												

BURRWOOD, LA. (1014 MB.)				CARIBOU, MAINE ( 988 MB.)				CHARLESTON, S. C. (1014 MB.)				COLUMBIA, MO. ( 986 MB.)				DODGE CITY, KANS. ( 923 MB.)				EL PASO, TEX. ( 879 MB.)				ELY, NEV. ( 808 MB.)							
Number of observations				Dynamic height				Temperature				Relative humidity				Number of observations				Dynamic height				Temperature				Relative humidity			
SURFACE	31	3	22.7	88	31	191	7.9	75	31	13	20.3	85	31	238	16.8	64	31	792	16.0	68	31	1,195	23.8	25	31	1,908	13.2	44			
1,000---	31	128	23.1	78	31	93			31	131	22.0	72	31	114			31	98			31	49			31	74					
950---	31	580	21.1	66	31	520	7.7	67	31	581	21.1	60	31	556	17.6	55	31	542			31	514			31	525					
900---	31	1,041	18.3	61	31	962	4.9	70	31	1,044	18.0	60	31	1,014	14.9	58	31	1,006	16.7	56	31	991			31	992					
850---	31	1,529	15.5	53	31	1,426	2.0	75	31	1,531	14.6	59	31	1,495	11.7	59	31	1,491	14.2	53	31	1,488	23.3	22	31	1,480					
800---	31	2,040	12.7	49	31	1,912	- .9	77	31	2,041	11.1	55	31	2,000	8.7	61	31	2,001	11.3	54	31	2,011	18.6	25	31	1,995	14.4	35			
750---	31	2,585	9.4	48	31	2,432	-3.6	76	30	2,585	7.8	51	31	2,537	5.2	62	31	2,539	7.9	51	31	2,563	13.8	30	31	2,538	10.6	34			
700---	31	3,148	6.1	42	31	2,968	-6.5	69	30	3,144	4.4	43	31	3,092	2.5	52	31	3,102	4.2	49	31	3,153	8.8	33	31	3,106	5.6	39			
650---	30	3,753	2.5	37	31	3,554	-9.7	66	30	3,748	-7.7	39	31	3,692	-1.2	49	30	3,701	-1.7	47	31	3,744	3.6	38	31	3,703	-3.4	45			
600---	29	4,393	-1.0		31	4,158	-13.0	57	30	4,381	-3.2		31	4,321	-5.3	43	30	4,338	-4.5	46	31	4,386	-1.9	42	31	4,341	-5.1	51			
550---	29	5,084	-5.5		30	4,817	-17.1	56	30	5,067	-7.3		31	5,003	-9.8	43	30	5,015	-9.5	45	31	5,074	-6.9	39	31	5,013	-10.3	49			
500---	29	5,822	-10.6		30	5,518	-21.7	54	30	5,801	-11.9		30	5,725	-15.0	40	30	5,745	-14.8	42	31	5,807	-12.4	35	31	5,745	-15.4	42			
450---	27	6,627	-16.2		30	6,293	-26.9	51	31	6,608	-17.5		30	6,520	-20.5	34	30	6,535	-20.3	36	31	6,606	-18.2		31	6,535	-21.1	38			
400---	27	7,499	-22.5		30	7,126	-33.0	45	30	7,472	-23.9		30	7,375	-27.0	35	29	7,394	-27.1	36	31	7,473	-24.7		31	7,392	-27.3	35			
350---	27	8,464	-29.7		30	8,052	-39.7		30	8,432	-31.2		30	8,323	-34.2		28	8,343	-34.4		31	8,430	-32.1		31	8,338	-34.5				
300---	27	9,544	-37.8		29	9,092	-45.7		30	9,506	-39.4		30	9,383	-42.4		28	9,403	-42.4		31	9,499	-40.6		31	9,396	-42.6				
250---	25	10,773	-46.6		29	10,294	-49.6		30	10,728	-48.8		30	10,591	-5																



# RADIOSONDE DATA

Average monthly values

MAY 1952

Table 20--Continued

JOLIET, ILL. ( 993 MB.)				LAKE CHARLES, LA. (1014 MB.)				LANDER, WYO. ( 829 MB.)				LAS VEGAS, NEV. ( 934 MB.)				LITTLE ROCK, ARK. (1004 MB.)				MAZATLAN, MEXICO (1008 MB.)				MEDFORD, ORE. ( 969 MB.)				
Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				
Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				
Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				
Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				
Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				
URFACE	31	179	12.8	75	31	5	21.4	85	29	1,696	12.0	53	31	660	26.3	16	31	79	20.0	71	22	14	24.6	76	31	401	17.6	50
0000--	31	115			31	127	22.1	76	29	89			31	46			31	113	20.8	65	22	83	24.3	74	31	133		
0000--	31	551	14.3	59	31	580	20.2	68	29	536			31	505			31	565	20.7	57	22	540	24.5	37	31	577	17.6	43
0000--	31	1,004	11.7	61	31	1,037	17.5	65	29	1,000			31	983	26.1	15	31	1,024	17.2	63	22	1,005	24.1		31	1,032	13.8	49
0000--	31	1,480	8.9	63	31	1,524	14.8	60	29	1,482			31	1,481	21.6	18	31	1,509	13.9	62	22	1,502	21.6		31	1,510	9.7	57
0000--	31	1,979	5.9	63	31	2,035	12.5	53	29	1,992	12.6	44	31	2,002	16.9	20	31	2,018	10.9	56	22	2,024	18.6		31	2,010	5.9	63
0000--	31	2,508	2.9	58	31	2,583	9.7	45	29	2,537	8.2	48	31	2,555	11.9	25	31	2,563	8.0	47	22	2,584	15.2		31	2,540	2.2	62
0000--	31	3,061	-1	57	31	3,143	6.3	44	29	3,094	3.5	52	31	3,119	7.0	28	31	3,120	5.1	39	22	3,153	11.5		31	3,089	-1.3	53
0000--	31	3,654	-3.5	58	31	3,754	2.4	41	29	3,693	-1.3	58	31	3,726	1.9	33	31	3,726	1.4	38	22	3,776	7.4		31	3,681	-4.2	42
0000--	31	4,280	-7.1	53	31	4,390	-1.4	34	29	4,323	-6.3	62	31	4,363	-2.9	35	31	4,360	-2.8	39	21	4,419	2.7		31	4,303	-8.2	36
0000--	30	4,955	-11.4	47	31	5,081	-6.0		29	4,999	-11.1	55	31	5,051	-7.7		31	5,046	-7.6	37	21	5,120	-2.3		31	4,980	-12.3	35
0000--	30	5,678	-16.2	43	31	5,816	-11.4	33	29	5,722	-16.1	43	31	5,780	-12.9		31	5,778	-12.5	33	21	5,867	-7.4		31	5,695	-17.0	32
0000--	30	6,463	-21.6		31	6,621	-17.3		29	6,512	-21.8	41	31	6,580	-19.0		31	6,578	-18.5		21	6,690	-13.0		31	6,482	-22.6	34
0000--	30	7,321	-28.0		31	7,487	-23.5		29	7,363	-28.2	41	31	7,441	-25.2		31	7,442	-24.7		21	7,567	-19.3		31	7,332	-28.8	35
0000--	30	8,265	-35.3		31	8,448	-30.7		28	8,310	-35.3		31	8,396	-32.9		31	8,399	-32.3		21	8,544	-27.1		31	8,273	-36.2	
0000--	30	9,321	-43.1		31	9,524	-38.9		28	9,366	-43.3		31	9,461	-41.3		29	9,463	-40.6		21	9,635	-35.6		31	9,324	-44.4	
0000--	30	10,527	-51.6		31	10,749	-47.9		27	10,562	-52.6		31	10,674	-50.5		29	10,680	-49.9		19	10,885	-45.0		31	10,521	-52.6	
0000--	29	11,950	-57.3		29	12,192	-56.6		26	11,984	-58.4		30	12,102	-58.3		29	12,111	-57.7		17	12,336	-56.0		30	11,939	-57.9	
0000--	29	12,793	-57.0		28	13,031	-60.4		26	12,825	-57.1		29	12,940	-59.9		29	12,950	-59.1		14	13,165	-61.6		30	12,779	-58.4	
0000--	29	13,770	-56.4		28	13,984	-63.0		24	13,798	-56.2		29	13,901	-59.8		27	13,916	-59.3		11	14,088	-66.0		30	13,751	-57.3	
0000--	27	14,937	-56.8		25	15,092	-64.6		23	14,955	-56.9		29	15,036	-60.5		25	15,054	-61.0		8	15,182	-68.6		30	14,904	-56.9	
0000--	26	16,345	-57.6		24	16,446	-66.2		19	16,359	-57.2		26	16,424	-61.8		21	16,437	-62.4						30	16,315	-57.6	
0000--	24	17,748	-58.1		23	17,803	-65.4		15	17,766	-57.1		24	17,809	-61.4		18	17,814	-61.8						28	17,726	-56.4	
0000--	22	19,557	-57.1		22	19,566	-61.5		12	19,579	-56.9		21	19,598	-60.4		15	19,609	-58.8						28	19,546	-56.9	
0000--	21	20,714	-55.2		19	20,710	-57.3		12	20,735	-56.0		21	20,736	-58.7		10	20,765	-56.2						28	20,700	-56.8	
0000--	19	22,147	-53.2		17	22,121	-54.4		10	22,150	-53.6		20	22,149	-55.6		9	22,190	-52.8						24	22,120	-55.1	
0000--	13	23,995	-50.9		15	23,970	-51.3		6	23,989	-51.5		18	24,002	-52.1		7	24,051	-51.1						18	23,956	-53.0	
0000--	6	26,670	-48.1		6	26,582	-48.2						15	26,646	-49.3										8	26,572	-49.1	
0000--													11	28,529	-47.7													

	MERIDA, MEXICO (1010 MB.)				MIAMI, FLA. (1015 MB.)				NANTUCKET, MASS. (1011 MB.)				NASHVILLE, TENN. ( 994 MB.)				NORTH PLATTE, NEBR. ( 917 MB.)				OAKLAND, CALIF. (1015 MB.)				OKLAHOMA CITY, OKLA. ( 968 MB.)			
URFACE	30	27	27.3	71	31	4	25.3	72	31	14	9.5	88	31	177	19.9	69	31	849	13.4	76	31	6	15.3	67	31	391	19.6	
0000----	30	114	26.7	72	31	138	24.2	72	31	101	11.2	79	31	120			31	103		31	136	14.3	67	31	353			
0000----	30	571	24.2	73	31	588	21.1	72	31	531	11.3	61	31	567	19.6	55	31	546		65	31	577	15.6	47	31	553	20.5	
0000----	30	1,039	21.4	74	31	1,052	18.1	71	31	981	8.5	61	31	1,028	16.2	58	31	1,003	14.5	65	31	1,029	15.2	35	31	1,014	17.8	
0000----	30	1,534	18.4	73	31	1,540	15.4	65	31	1,451	5.4	62	31	1,511	12.6	58	31	1,485	12.0	61	31	1,511	13.2	28	31	1,501	15.0	
0000----	30	2,052	15.4	74	31	2,052	12.6	61	31	1,943	2.1	67	31	2,017	9.4	55	31	1,990	8.7	63	31	2,017	10.2	27	31	2,012	12.1	
0000----	30	2,601	12.5	66	31	2,592	9.6	58	31	2,465	-1.8	60	31	2,554	6.1	51	31	2,524	5.2	64	31	2,558	7.0		31	2,553	8.5	
0000----	30	3,173	9.3	59	31	3,161	6.4	53	31	3,010	-3.4	53	31	3,111	2.8	46	31	3,081	1.6	61	31	3,115	3.9		31	3,116	4.7	
0000----	29	3,791	5.7	53	31	3,764	3.4	44	31	3,598	-6.7	46	31	3,707	-5	42	31	3,677	-2.3	57	31	3,717	-2		31	3,718	5.48	
0000----	28	4,436	2.2	46	30	4,411	-5	40	30	4,214	-9.6	43	31	4,343	-4.6	39	31	4,305	-6.6	54	31	4,350	-3.9		30	4,354	-3.8	
0000----	25	5,135	-1.7	41	30	5,097	-4.5	37	30	4,885	-11.8	43	31	5,022	-9.1	33	31	4,980	-11.0	47	31	5,034	-8.6		30	5,038	-8.5	
0000----	27	5,886	-6.2	39	28	5,843	-9.2		29	5,597	-18.1	42	31	5,752	-14.2		31	5,704	-16.1	49	31	5,763	-13.8	29	30	5,767	-13.7	
0000----	26	6,711	-11.2		27	6,653	-14.0		29	6,384	-23.0	41	31	6,549	-19.8		31	6,492	-21.8	47	31	6,560	-19.7	31	30	6,565	-19.3	
0000----	26	7,396	-16.8	41	27	7,337	-19.9		29	7,231	-28.5	42	31	7,406	-26.0		31	7,346	-28.3	45	30	7,420	-26.4		30	7,425	-25.9	
0000----	26	8,081	-24.0	44	28	8,022	-26.7		26	7,813	-35.5	31	8,353	-33.1	28	31	8,289	-33.1	31	8,424	-33.1	31	8,471	-33.1		30	8,475	-33.1
0000----	26	9,689	-31.9	47	26	9,607	-34.4		26	9,229	-42.6		31	9,424	-40.9		31	9,344	-43.7		30	9,433	-41.8		30	9,439	-41.5	
0000----	24	10,951	-41.3		26	10,856	-43.9		27	10,443	-49.9		30	10,638	-49.6		30	10,547	-52.5		30	10,643	-50.9		30	10,648	-50.8	
0000----	24	12,426	-53.4		26	12,315	-55.6		25	11,887	-54.2		31	12,069	-57.6		30	11,964	-58.7		28	12,073	-58.3		30	12,073	-58.2	
0000----	75	23,137	-67.1		26	23,152	-61.8		24	22,748	-55.3		31	22,907	-59.4		29	22,808	-57.3		26	22,909	-58.3		30	22,911	-58.8	
0000----	21	14,218	-67.5		25	14,089	-67.4		21	13,718	-54.9		31	13,871	-59.5		29	13,785	-56.4		25	13,872	-58.1		30	13,878	-58.6	
0000----	25	16,529	-73.0		25	15,176	-70.3		17	14,868	-54.8		30	15,005	-60.7		29	14,938	-57.6		24	15,018	-58.8		30	15,017	-60.5	
0000----	7	16,565	-76.6		21	16,497	-71.4		16	16,285	-55.4		29	16,385	-62.0		28	16,342	-58.6		21	16,414	-59.6		26	16,401	-52.1	
0000----	26	17,805	-80.8		17	17,712	-80.5		17	17,568	-75.2		27	17,765	-75.2		27	17,752	-75.2		22	17,818	-59.9		22	17,884	-61.1	
0000----	5	19,569	-64.3		13	19,552	-62.6		12	19,549	-54.5		27	19,552	-59.2		18	19,555	-57.7		18	19,628	-57.7		24	19,567	-60.2	
0000----	0				11	20,681	-59.1		11	20,729	-53.8		27	20,700	-56.8		15	20,701	-56.3		18	20,781	-56.0		19	20,716	-57.3	
0000----	0				10	22,105	-52.4		10	22,175	-52.4		26	22,124	-53.9		15	22,124	-54.5		15	22,222	-53.1		17	22,136	-54.1	
0000----	0				8	23,946	-51.8		5	23,978	-50.0		22	23,984	-51.3		13	23,958	-52.6		14	24,101	-49.1		14	24,000	-51.2	
0000----	0												7	26,654	-48.3		6	26,596	-49.5		6	26,727	-47.1		5	26,674	-46.5	



# RADIOSONDE DATA

Average monthly values

Table 20--Continued

MAY 1952

Standard pressure surface (mb.)	SAN JUAN, P. R. (1014 MB.)				SANTA MARIA, CALIF. (1007 MB.)				S. STE. MARIE, MICH. ( 987 MB.)				SPOKANE, WASH. ( 932 MB.)				SWAN ISLAND, W. I. (1011 MB.)				TACUBAYA, MEXICO ( 773 MB.)				TAMPA, FLA. (1015 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	19	25.7	84	31	71	12.7	78	31	221	7.3	79	31	722	15.7	44	31	10	26.7	83	31	2,306	17.6	56	31	9	22.7	76
1,000----	31	139	25.0	83	31	133	12.2	77	31	114		77	31	115		44	31	111	26.4	82	31	44		31	143	22.8	73	
950-----	31	594	22.3	81	31	576	15.0	61	31	547	10.2	58	31	559		49	31	572	23.3	82	31	510		31	596	21.1	64	
900-----	31	1,059	19.6	80	31	1,025	17.6	36	31	988	8.0	56	31	1,017	13.8	44	31	1,035	20.5	78	31	988		31	1,057	18.4	61	
850-----	31	1,550	16.5	77	31	1,512	15.4	32	31	1,458	4.8	59	31	1,495	9.9	49	31	1,528	18.5	66	31	1,484		31	1,545	15.1	63	
800-----	31	2,065	14.0	71	31	2,023	12.1	28	31	1,950	1.8	59	31	1,995	5.7	53	31	2,046	15.7	62	31	2,017		31	2,057	12.2	61	
750-----	31	2,610	11.2	61	31	2,570	8.9	23	31	2,470	- 1.2	58	31	2,523	1.4	58	31	2,598	12.8	58	31	2,571	15.9	54	31	2,602	9.2	51
700-----	31	3,182	8.3	51	31	3,127	5.8		31	3,015	- 3.8	52	31	3,070	- 2.5	58	31	3,168	9.7	55	31	3,150	11.7	56	31	3,165	6.3	44
650-----	31	3,797	5.1	47	31	3,732	2.1		31	3,599	- 7.0	50	31	3,656	- 6.7	56	31	3,788	6.2	51	31	3,771	6.8	62	31	3,775	2.9	40
600-----	30	4,441	1.5	49	31	4,370	- 2.5		31	4,218	-10.6	49	31	4,274	-10.4	49	31	4,433	2.3	49	31	4,418	1.9	68	31	4,413	- .6	34
550-----	30	5,145	- 2.4	44	30	5,056	- 7.4		30	4,880	-15.0	47	31	4,943	-14.6	42	31	5,133	- 1.6	46	31	5,118	- 2.9	70	31	5,108	- 4.9	33
500-----	30	5,888	- 6.8	43	30	5,790	-12.5		30	5,592	-19.8	43	31	5,653	-19.6	41	31	5,884	- 5.7	40	31	5,864	- 7.8	70	30	5,846	- 9.6	
450-----	30	6,714	-12.0	40	30	6,588	-18.3		30	6,367	-25.1	39	31	6,431	-25.1	43	31	6,713	-10.2	34	31	6,687	-12.3	54	30	6,663	-15.0	
400-----	30	7,594	-18.0	37	30	7,455	-25.1		30	7,213	-31.0	39	31	7,272	-31.5	44	31	7,602	-16.1	35	29	7,568	-18.1	49	30	7,532	-21.2	
350-----	30	8,577	-25.3	33	30	8,410	-32.8		30	8,146	-37.9		31	8,202	-38.8		31	8,593	-22.9	34	27	8,554	-24.8		30	8,504	-27.9	
300-----	29	9,675	-34.1		30	9,476	-41.3		29	9,192	-45.6		30	9,245	-46.4		31	9,704	-31.0		21	9,653	-33.3		30	9,594	-35.9	
250-----	29	10,925	-44.5		30	10,689	-50.7		29	10,386	-52.7		29	10,439	-53.4		31	10,971	-41.0		14	10,910	-42.8		30	10,837	-45.0	
200-----	29	12,379	-56.5		29	12,109	-58.6		29	11,817	-53.9		29	11,861	-56.4		31	12,448	-53.2		13	12,386	-54.1		30	12,293	-55.7	
175-----	29	13,213	-63.2		29	12,943	-60.9		29	12,677	-52.7		29	12,710	-55.1		31	13,294	-60.0		12	13,236	-60.1		30	13,132	-61.3	
150-----	29	14,146	-69.5		29	13,900	-60.7		29	13,671	-52.7		29	13,696	-54.4		29	14,241	-67.5		10	14,185	-67.3		29	14,076	-65.7	
125-----	24	15,229	-74.9		28	15,043	-61.4		28	14,849	-54.2		29	14,862	-54.4		21	15,322	-74.7						26	15,170	-68.7	
100-----	20	16,512	-75.4		27	16,424	-62.5		27	16,273	-55.6		28	16,290	-54.0		11	16,591	-79.9						24	16,496	-69.5	
80-----	16	17,810	-70.6		25	17,796	-62.6		26	17,695	-56.3		28	17,722	-53.9										21	17,823	-68.6	
60-----	15	19,547	-61.9		23	19,571	-59.8		25	19,521	-55.5		28	19,563	-55.0										20	19,567	-61.7	
50-----	13	20,679	-57.9		21	20,719	-57.0		23	20,682	-54.5		24	20,728	-55.2										19	20,708	-57.9	
40-----	7	22,097	-53.2		18	22,133	-53.9		23	22,115	-53.0		22	22,153	-54.1										16	22,129	-54.4	
30-----					12	23,979	-51.4		16	23,983	-51.7		18	24,008	-52.0										13	23,979	-50.5	
20-----									11	26,647	-48.9		9	26,609	-49.4													
15-----									6	28,509	-48.5																	

Standard pressure surface (mb.)	TATOOSH ISLAND, WASH. (1016 MB.)				VERACRUZ, MEXICO (1010 MB.)				WASHINGTON, D.C. (1033 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	31	10.0	83	29	12	26.4	80	31	88	15.4	69
1,000----	31	160	9.5	80	29	96	25.6	81	31	115	16.2	63
950-----	31	589	8.5	67	29	549	23.4	78	31	553	15.9	58
900-----	31	1,031	6.2	64	29	1,019	21.4	74	31	1,009	13.4	60
850-----	31	1,497	3.6	60	29	1,513	18.6	72	31	1,487	10.3	63
800-----	31	1,987	.7	61	29	2,032	15.8	68	31	1,989	7.7	60
750-----	31	2,508	- 2.2	52	29	2,585	13.1	58	31	2,525	4.6	60
700-----	31	3,047	- 5.4	49	29	3,156	9.9	54	31	3,078	1.6	57
650-----	31	3,631	- 8.7	51	29	3,772	6.2	55	31	3,676	- 1.4	50
600-----	31	4,240	-12.7	45	29	4,421	1.9	57	31	4,305	- 5.1	48
550-----	31	4,902	-17.0	44	29	5,115	- 2.4	55	31	4,986	- 9.3	44
500-----	31	5,608	-21.7	41	28	5,870	- 7.0	60	31	5,714	-14.1	42
450-----	31	6,379	-27.5	44	28	6,692	-11.6	55	31	6,511	-19.6	46
400-----	31	7,212	-33.8	46	28	7,580	-17.1	59	31	7,369	-26.0	47
350-----	31	8,134	-40.3		26	8,566	-24.2	54	31	8,321	-33.1	45
300-----	31	9,169	-46.9		23	9,672	-32.1		31	9,385	-41.4	
250-----	29	10,372	-52.5		23	10,935	-41.9		31	10,594	-51.3	
200-----	22	11,800	-55.9		20	12,408	-53.7		30	12,012	-59.2	
175-----	22	12,650	-54.8		19	13,256	-60.0		29	12,852	-59.8	
150-----	22	13,637	-53.9		17	14,207	-66.7		29	13,816	-59.0	
125-----	18	14,793	-53.7		13	15,284	-72.2		28	14,959	-59.3	
100-----	14	16,205	-53.5		10	16,575	-75.4		24	16,350	-59.6	
80-----	14	17,639	-53.4		6	17,870	-75.2		23	17,742	-59.2	
60-----	13	19,487	-54.0		5	19,557	-65.7		21	19,548	-56.8	
50-----	11	20,654	-54.7		5	20,678	-60.6		18	20,697	-55.1	
40-----	9	22,062	-54.6		5	22,076	-57.1		18	22,127	-53.2	
30-----	5	23,870	-55.0		5	23,907	-53.9		15	24,008	-50.5	
20-----									7	26,654	-48.0	

Note: All observations scheduled at 0300, G.C.T. except at Mazatlan, Merida and Veracruz, where they are taken near 0200, G.C.T., "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and

expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.



## Average monthly resultant winds

MAY 1952

These free air resultant winds are based on pilot balloon observations made at 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°; W = 270°); speeds in meters per second.



# RAWIN DATA Average monthly resultant winds

Table 22

MAY 1952

	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Burrwood, La. (3 m.)			Caribou, Me. (191 m.)			Charleston, S.C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junc- tion, Colo. (1,473 m.)			Greensboro, N.C. (275 m.)			Hatteras, N.C. (3 m.)			International Falls, Minn. (358 m.)		
Altitude (meters) m.s.l.	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations		
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed				
Surface-----	31	239	0.6	31	149	3.8	31	86	1.0	31	125	4.9	31	207	1.7	31	302	1.9	31	228	2.2	31	64	0.8	31	8	1.2	31	263	1.0	31	204	2.7	30	301	1.5
500-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
1,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
1,500-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2,000-----	31	291	3.9	31	222	3.5	31	303	2.5	31	165	3.0	29	246	1.3	31	341	1.0	31	278	6.5	31	271	4.1	31	278	1.6	31	278	7.2	30	290	7.8	30	315	5.4
2,500-----	31	285	4.4	31	257	3.7	31	308	4.4	31	249	1.3	28	289	1.7	31	3	1.3	31	274	6.3	30	282	5.7	31	277	1.8	31	275	7.6	30	294	8.5	29	311	5.4
3,000-----	31	277	4.9	31	282	5.3	30	313	4.8	31	264	2.5	27	258	2.4	31	14	9	31	275	6.2	29	272	6.7	31	284	2.6	31	276	8.4	29	293	8.9	29	311	6.3
4,000-----	31	277	6.9	31	295	8.0	29	307	6.8	31	280	5.3	23	278	4.0	29	329	1.3	31	275	8.0	28	274	8.0	31	268	4.5	31	276	9.6	28	285	9.6	29	314	7.5
5,000-----	31	282	8.3	31	294	9.4	30	302	8.7	29	288	8.0	23	270	6.1	28	309	2.4	25	277	7.8	27	269	9.5	31	265	6.1	31	267	10.7	27	280	11.6	28	304	9.0
6,000-----	31	289	8.7	31	286	9.9	30	302	11.2	27	285	9.0	22	270	8.5	27	311	3.6	25	272	10.0	25	271	11.8	31	276	8.4	30	272	13.0	25	275	14.2	28	298	10.5
8,000-----	28	289	9.4	28	278	9.8	29	288	15.8	26	278	12.3	22	266	13.9	27	281	5.5	25	267	11.7	17	250	14.4	30	277	11.3	28	268	15.6	22	289	17.8	24	283	11.7
10,000-----	26	298	10.8	25	266	12.3	31	296	18.4	18	265	18.0	19	259	23.7	24	281	10.8	24	262	18.7	16	244	19.5	28	282	12.7	24	276	17.5	17	286	20.3	19	284	11.1
12,000-----	26	295	13.3	20	255	17.8	17	293	14.7	13	258	24.2	15	254	26.5	23	286	11.4	21	269	25.2	12	248	20.6	21	293	16.0	20	279	21.6	12	290	25.9	13	275	8.9
14,000-----	22	280	11.2	16	252	16.9	15	289	10.4				12	262	22.1	20	289	9.5	17	277	26.5				15	290	11.7	17	285	23.3						
16,000-----	18	269	7.2	12	255	9.8	14	281	7.2							16	295	8.9	13	281	17.9				12	281	7.6	12	288	15.5						
18,000-----	14	299	15.6	10	27	5	12	315	4.5							14	284	2.1							11	295	4.1									
20,000-----	10	53	2.5	10	75	4.2										10	325	2.4																		

	Little Rock, Ark. (80 m.)			Medford, Ore. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P.R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)			
Altitude (meters) m.s.l.	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed					
Surface-----	31	190	0.9	31	324	3.7	31	125	2.0	30	229	2.1	31	232	0.6	31	282	4.4	31	143	2.4	31	38	2.0	31	121	4.1	31	151	2.8	31	337	0.8	31	265	3.	
500-----	30	212	2.9	31	319	4.2	31	126	4.4	28	293	5.6	31	248	2.0	31	293	5.2	23	128	1.5	---	---	---	---	31	131	5.7	31	106	5.6	31	346	1.7	31	325	4.4
1,000-----	30	227	3.5	31	314	4.5	31	119	3.4	28	308	7.0	31	250	3.5	31	286	4.3	23	169	2.1	31	38	2.2	31	147	5.4	31	110	4.8	31	335	3.8	31	342	5.	
1,500-----	29	239	4.2	31	302	3.1	31	99	1.5	29	308	8.1	31	258	4.7	31	285	2.7	25	225	2.8	31	78	2.4	31	175	3.1	31	111	4.0	31	337	4.5	31	5	4.	
2,000-----	28	246	3.8	31	266	2.5	31	42	5	28	301	8.6	31	266	5.8	31	288	2.5	26	259	3.7	31	100	9	31	214	2.2	31	102	2.7	31	321	4.7	31	2	3.	
2,500-----	28	266	3.7	31	231	2.7	31	222	5	29	295	10.0	31	265	7.1	31	297	3.3	28	268	4.8	31	300	1.7	31	258	2.6	31	115	2.0	30	316	5.4	31	319	3.	
3,000-----	28	291	4.7	31	225	4.0	31	266	1.4	29	293	11.7	31	265	6.6	31	285	4.6	29	273	6.0	31	302	3.8	31	274	4.4	31	129	1.0	30	302	6.1	31	291	4.4	
4,000-----	25	315	6.1	31	241	7.0	30	273	3.5	27	288	16.5	31	272	7.6	31	271	8.1	28	276	6.7	31	306	7.2	31	282	6.5	30	186	6	30	300	8.6	31	282	8.	
5,000-----	26	297	7.6	31	249	9.9	30	272	6.0	20	288	22.3	31	273	10.0	29	267	10.5	29	281	7.5	31	300	9.4	31	283	7.9	30	248	1.9	26	297	10.2	30	282	9.	
6,000-----	25	281	6.7	28	249	10.5	27	274	9.5	18	289	23.5	30	275	11.1	24	265	10.7	29	285	8.9	31	293	11.5	31	283	9.4	30	262	3.2	25	282	11.4	28	280	10.	
8,000-----	23	275	7.6	21	254	12.8	26	272	18.7	10	287	20.2	28	272	13.6	17	271	15.6	29	275	9.9	30	279	14.2	29	274	12.2	30	267	6.2	25	283	15.1	25	269	13.	
10,000-----	17	280	7.4	17	270	15.9	26	268	28.7				25	275	15.7	10	246	14.3	27	267	10.3	29	273	16.5	23	277	15.5	29	282	10.7	20	271	18.6	21	274	15.	
12,000-----	15	271	12.4	14	270	17.4	23	268	31.8				20	275	14.5				25	262	13.5	25	279	15.4	17	276	20.0	29	289	11.3	17	283	16.5	19	277	19.	
14,000-----	13	288	13.8	10	271	11.5	18	264	29.2				17	285	16.7				23	271	15.8	23	285	12.6	14	269	16.0	28	290	13.6	15	286	12.8	16	278	14.	
16,000-----				10	269	7.7	10	272	16.4				15	293	10.8				17	300	3.8	18	281	5.1				15	98	1.5	10	274	3.1	13	295	3.	
18,000-----																			13	15	2.3				11	129	3.7										
20,000-----																																					
22,000-----																																					

	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Tatoosh Island, Wash. (33 m.)			Washington, D.C. (88 m.)		
Altitude (meters) m.s.l.	No. of observations			No. of observations			No. of observations			No. of observations		
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed	
Surface-----	31	310	1.6	31	203	1.9	30	246	2.7	31	130	0.3
500-----	31	333	4.0	---	---	---	30	259	3.2	31	256	2.5
1,000-----	31	339	4.1	31	236	2.8	30	235	2.5	31	276	5.9
1,500-----	30	326	3.2	31	256	3.4	30	213	2.0	31	275	8.7
2,000-----	28	326	4.1	31	263	3.5	30	218	3.1			



# SOLAR RADIATION DATA

Table 30--Solar radiation intensities, tabulated in langleys per minute.

MAY 1952

Date	Sun's zenith distance								Vapor pressure, E.S.T.		
	A. M.				0.0°	P. M.				7:30 a. m.	1:30 p. m.
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°		

Date	Sun's zenith distance								Vapor pressure, E.S.T.	
	A. M.				0.0°	P. M.				
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°	7.30 a. m.

TABLE MOUNTAIN, CALIF.

	Air mass									Mb.	Mb.
	3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76		
May 1----	1.06	1.15	1.26	1.40	----	----	----	----	----		
5-----	1.08	1.19	1.30	1.46	----	----	----	----	----		
8-----	-----	1.11	1.22	1.36	----	----	----	----	----		
9-----	1.06	-----	1.27	1.40	----	----	----	----	----		
13----	-----	-----	-----	1.42	----	----	----	----	----		
15----	-----	-----	-----	1.44	----	----	----	----	----		
16----	-----	-----	-----	1.32	----	----	----	----	----		
21----	-----	-----	-----	1.39	----	----	----	----	----		
22----	-----	-----	-----	1.35	----	----	----	----	----		
23----	-----	-----	-----	1.37	----	----	----	----	----		
24----	-----	-----	-----	1.33	----	----	----	----	----		
29----	-----	-----	-----	1.37	----	----	----	----	----		
31----	-----	-----	-----	1.36	----	----	----	----	----		
Averages	1.07	1.15	1.26	1.38	----	----	----	----	----		
Departures	+0.01	.00	.00	-.01	----	----	----	----	----		

LINCOLN, NEBR.

	Air mass									Mb.	Mb.
	4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
May 10----	-----	-----	-----	-----	1.39	-----	-----	-----	-----		
12----	-----	-----	-----	-----	1.35	1.17	.99	0.90	0.82		
29----	-----	-----	-----	-----	1.30	-----	-----	-----	-----		
31----	-----	-----	-----	-----	1.33	-----	-----	-----	-----		
Averages	-----	-----	-----	-----	1.34	1.17	.99	.90	.82		
Departures	-----	-----	-----	-----	-.03	+.05	+.09	+.11	+.15		

MADISON, WIS.

	Air mass									Mb.	Mb.
	4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		
May 2----	0.32	0.42	0.58	0.90	1.09	-----	-----	-----	-----		
3----	.44	.57	.66	.87	1.17	-----	-----	-----	-----		
5----	.33	.48	.60	.76	1.12	-----	-----	-----	-----		
6----	.53	.69	.86	1.08	1.37	-----	-----	-----	-----		
15----	.60	.71	-----	-----	-----	-----	-----	-----	-----		
21----	.42	.50	.69	.87	1.02	-----	-----	-----	-----		
26----	-----	-----	-----	-----	1.18	-----	-----	-----	-----		
28----	.75	.83	.96	1.13	1.32	-----	-----	-----	-----		
29----	.76	.86	.96	1.13	1.33	-----	-----	-----	-----		
Averages	.52	.63	.76	.94	1.20	-----	-----	-----	-----		
Departures	-.10	-.12	-.17	-.14	-.15	-----	-----	-----	-----		

\* Extrapolated

BLUE HILL, MASS.

	Air mass									Mb.	Mb.
	4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
May 1----	0.91	0.97	1.12	1.30	-----	-----	-----	-----	-----		
5-----	.95	1.05	1.15	1.30	-----	-----	-----	-----	-----		
8-----	-----	-----	1.09	1.26	-----	-----	-----	-----	-----		
9-----	-----	-----	1.08	1.29	-----	-----	-----	-----	-----		
14----	-----	-----	-----	-----	-----	1.20	1.03	0.96	0.85		
16----	-----	-----	-----	-----	-----	-----	1.03	.91	-----		
17----	.82	.93	1.05	1.20	-----	-----	-----	-----	-----		
19----	.66	.74	.88	1.06	-----	-----	-----	-----	-----		
23----	.79	.90	1.05	1.20	-----	1.02	.83	.74	.66		
27----	-----	-----	-----	-----	-----	1.18	1.06	.90	.81		
28----	.88	.98	1.09	1.22	-----	1.13	-----	-----	-----		
Averages	.84	.93	1.06	1.23	-----	1.13	.99	.88	.77		
Departures	+.14	+.12	+.10	+.13	-----	+.06	+.09	+.12	+.11		

BOSTON, MASS.

	Air mass									Mb.	Mb.
	4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96		
May 10----	-----	-----	-----	-----	-----	-----	-----	-----	-----		
12----	-----	-----	-----	-----	-----	-----	-----	-----	-----		
29----	-----	-----	-----	-----	-----	-----	-----	-----	-----		
31----	-----	-----	-----	-----	-----	-----	-----	-----	-----		
Averages	-----	-----	-----	-----	-----	-----	-----	-----	-----		
Departures	-----	-----	-----	-----	-----	-----	-----	-----	-----		

NO DATA DURING MAY 1952

ALBUQUERQUE, N. M.

	Air mass									Mb.	Mb.
	4.08	3.26	2.44	1.63	*0.815	1.63	2.44	3.26	4.08		
May 10----	-----	-----	-----	-----	-----	-----	-----	-----	-----		
12----	-----	-----	-----	-----	-----	-----	-----	-----	-----		
29----	-----	-----	-----	-----	-----	-----	-----	-----	-----		
31----	-----	-----	-----	-----	-----	-----	-----	-----	-----		
Averages	-----	-----	-----	-----	-----	-----	-----	-----	-----		
Departures	-----	-----	-----	-----	-----	-----	-----	-----	-----		

RECORDER INOPERATIVE

TACUBAYA, D.F., MEXICO

	Air mass									Mb.	Mb.
	3.83	3.07	2.31	1.53	*0.77	1.53	2.31	3.07	3.83		
May 10----	-----	-----	-----	-----	-----	-----	-----	-----	-----		
12----	-----	-----	-----	-----	-----	-----	-----	-----	-----		
29----	-----	-----	-----	-----	-----	-----	-----	-----	-----		
31----	-----	-----	-----	-----	-----	-----	-----	-----	-----		
Averages	-----	-----	-----	-----	-----	-----	-----	-----	-----		
Departures	-----	-----	-----	-----	-----	-----	-----	-----	-----		

NO DATA DURING MAY 1952

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface.  
An explanation of Tables 30 and 31 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given

in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.



# SOLAR RADIATION DATA

MAY 1952

Table 31a.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

Date-----	29	30	1	2	3	4	5	Aver-	6	7	8	9	10	11	12	Aver-	13	14	15	16	17	18	19	Aver-
Langley-----	140	360	352	291	301	234	340	age	133	127	328	329	327	47	183	age	214	220	75	296	257	90	279	age
								288								210								204
Date-----	20	21	22	23	24	25	26	Aver-	27	28	29	30	31	1	2	Aver-								
Langley-----	(90)	(157)	(200)	250	286	65	107	age	286	289	239	142	216	135	267	age								
								(165)								225								

Table 31b.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during the month

Date-----	29	30	1	2	3	4	5	Aver-	6	7	8	9	10	11	12	Aver-	13	14	15	16	17	18	19	Aver-
Langley-----	108	110	118	133	147	150	137	age	81	98	120	125	121	29	99	age	121	149	62	130	161	88	133	age
								129								96								121
Date-----	20	21	22	23	24	25	26	Aver-	27	28	29	30	31	1	2	Aver-								
Langley-----	71	118	157	165	169	49	88	age	160	154	140	132	172	128	171	age								
								117								151								

Table 31c.-Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

Date-----	29	30	1	2	3	4	5	Aver-	6	7	8	9	10	11	12	Aver-	13	14	15	16	17	18	19	Aver-
Langley-----	181	62	70	202	219	243	106	age	115	171	81	93	146	43	161	age	160	224	91	100	253	84	173	age
								155								116								155
Date-----	20	21	22	23	24	25	26	Aver-	27	28	29	30	31	1	2	Aver-								
Langley-----	110	206	250	114	272	69	151	age	126	60	227	171	298	196	149	age								
								167								175								

Note.-Langley is the unit used to denote one gram calorie per square centimeter.



# SOLAR RADIATION DATA

Table 33.—Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyes.

MAY 1952

1952	Albuquerque, N. Mex.	Alaskatik, MacKenzie	Alaska	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Blue Hill, Mass.	Boston, Mass.	Brownsville, Tex.	Charleston, S.C.	Cleveland, Ohio	Columbia, Mo.	Columbus, Ohio	Davis, Calif.	E. Lansing, Mich.	E. Wareham, Mass.	Edmonton, Alberta	El Paso, Tex.	Fairbanks, Alaska	Fort Worth, Tex.	Fresno, Calif.	Grand Junction, Colo.	Grand Lake, Colo.	Greensboro, N.C.	Griffin, Ga.	Hattaras, N.C.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N.Y.	Keflavik, Iceland	Lake Charles, La.	Lander, Wyo.	Las Vegas, Nev.	
April 29-----	448	685	702	698	607	602	261	166	368	(333)	677	684	690	650	554	268	678	765	(533)	636	726	290	528	477	715	171	598	717	379	593	730	41	408	
April 30-----	554	537	692	708	521	327	753	690	456	702	699	574	678	213	573	666	482	738	(631)	706	641	519	376	700	720	597	644	718	735	345	673	585		
May 1-----	592	745	698	741	598	327	753	690	456	702	699	574	678	213	573	666	482	738	(631)	706	641	519	376	700	720	597	644	718	735	345	673	585		
May 2-----	592	745	698	741	598	327	753	690	456	702	699	574	678	213	573	666	482	738	(631)	706	641	519	376	700	720	597	644	718	735	345	673	585		
May 3-----	579	731	665	726	659	327	728	663	707	673	683	679	683	671	593	472	536	738	(642)	676	587	706	742	728	732	685	643	714	747	462	688	689		
May 4-----	579	731	665	726	659	327	728	663	707	673	683	679	683	671	593	472	536	738	(642)	676	587	706	742	728	732	685	643	714	747	462	688	689		
May 5-----	459	703	690	726	659	327	728	663	707	673	683	679	683	671	593	472	536	738	(642)	676	587	706	742	728	732	685	643	714	747	462	688	689		
Averages-----	473	703	689	665	590	418	583	529	595	(620)	648	(621)	647	572	557	546	508	745	---	680	640	602	528	477	715	171	598	717	379	593	730	41	408	
Departures-----	-1	+15	+59	+16	+81	-46	+108	+100	+27	+36	+125	+65	+126	-31	+166	+88	+19	+32	---	+148	+47	---	-15	+133	---	+80	+152	+28	+168	+89	+90	-18	---	
May 6-----	471	544	683	631	541	739	256	254	775	682	740	538	723	515	611	671	651	747	416	727	733	787	514	605	765	679	685	768	223	---	724	701	737	
May 7-----	313	606	707	599	539	(661)	228	291	695	665	690	416	623	376	449	191	709	700	(402)	782	508	693	599	720	781	800	805	532	728	---	590	749	796	736
May 8-----	634	749	711	---	554	301	718	685	729	534	226	187	294	706	423	647	691	602	(599)	727	723	762	(522)	473	450	519	314	766	236	---	270	623	233	736
May 9-----	508	648	701	---	521	659	731	672	672	682	558	422	635	626	617	681	436	(624)	725	701	735	553	626	612	214	769	748	517	704	370	740	735		
May 10-----	546	802	625	440	756	698	619	656	305	675	201	569	126	700	117	541	600	783	(608)	605	675	787	576	305	477	556	134	708	288	224	704	740		
May 11-----	374	774	485	581	535	690	58	98	779	218	350	569	223	708	506	91	581	777	(677)	808	701	773	423	304	517	511	394	765	90	424	806	714	722	
May 12-----	382	(779)	757	---	504	630	325	390	802	752	267	662	338	705	95	451	619	759	(575)	786	670	745	640	689	781	813	201	646	42	180	744	756	672	
Averages-----	461	(700)	667	563	579	(625)	419	435	679	602	433	452	380	626	358	412	655	(719)	---	737	660	700	(515)	562	585	(638)	336	719	369	298	669	621	699	
Departures-----	-30	+4	-67	-79	+44	+148	-55	-10	+103	-12	-84	-78	-134	-26	-31	-42	-135	-3	---	+168	+4	---	-23	---	-49	+42	-139	+2	-68	-40	---	+6	---	
May 13-----	606	757	761	---	498	(503)	498	430	764	765	404	767	548	716	611	671	651	747	416	727	733	787	514	605	765	679	685	768	223	---	724	701	737	
May 14-----	670	777	743	---	682	348	462	401	789	772	629	583	684	729	386	341	575	775	(416)	772	747	759	720	781	800	805	532	728	---	590	749	796	736	
May 15-----	465	768	727	721	537	324	124	108	773	736	395	519	678	749	318	146	511	700	(327)	740	750	598	541	705	735	768	597	728	---	270	623	233	736	
May 16-----	423	(587)	717	---	591	324	702	672	672	682	558	422	635	626	617	681	436	(624)	725	701	735	553	626	612	214	769	748	517	704	370	740	735		
May 17-----	435	(479)	517	---	729	425	606	624	359	691	118	167	542	727	145	576	422	708	(399)	(258)	716	399	425	682	771	741	104	644	601	146	694	103	480	
May 18-----	486	561	552	---	604	465	177	200	428	596	731	361	618	623	539	126	299	417	(523)	117	683	728	562	598	462	711	337	763	710	270	435	744	504	
May 19-----	582	722	401	372	651	414	672	667	643	589	311	580	105	454	396	675	578	778	560	472	597	720	259	124	418	402	637	692	634	499	288	782	899	
Averages-----	524	(665)	631	---	613	(404)	463	429	628	697	444	440	468	675	409	440	526	701	---	543	709	682	501	598	647	695	398	733	524	315	572	559	653	
Departures-----	+14	-22	+47	---	+46	-58	-12	+31	+35	+102	-55	-82	-38	+46	+27	+5	+21	-26	---	-22	+55	---	-54	---	+17	+94	-100	+16	+92	-1	-20	-29	---	
May 20-----	505	440	249	346	561	(477)	138	123	740	407	86	570	580	112	723	182	166	242	668	460	792	725	513	365	262	346	403	89	754	97	135	590	548	718
May 21-----	593	563	485	---	562	541	275	259	763	626	576	473	643	734	565	305	277	703	601	780	751	673	510	678	659	678	565	774	55	499	761	264	753	
May 22-----	345	643	650	---	594	710	423	484	680	640	275	423	398	736	347	389	399	787	469	608	732	515	465	736	780	508	775	728	451	476	87	770	736	
May 23-----	516	753	700	---	593	670	661	582	673	658	360	303	552	718	258	680	669	796	(384)	34	729	698	287	654	567	(714)	457	774	721	309	654	842	758	
May 24-----	649	788	706	---	587	493	417	579	433	618	220	314	410	720	75	576	703	791	(474)	579	744	809	496	291	455	703	451	754	178	182	727	812	743	
May 25-----	688	660	638	213	664	615	96	100	709	431	263	568	397	725	234	134	227	785	421	816	770	688	511	446	198	376	122	680	253	278	343	638	625	
May 26-----	747	513	423	587	579	378	192	191	561	423	740	730	553	682	651	162	464	112	611	797	753	642	370	629	725	645	719	765	465	613	639	339	741	
Averages-----	578	623	550	---	591	(583)	314	331	651	543	360	484	438	720	330	345	426	663	(489)	630	744	648	429	528	526	(614)	416	754	357	352	599	504	730	
Departures-----	+46	-54	-37	---	-2	+106	-137	-71	+34	-33	-143	-61	-87	+65	-56	-110	-66	-56	---	+29	+70	---	-121	-7	-71	-1	-119	+11	-120	-14	+22	-77	---	
May 27-----	399	604	687	742	510	(527)	638	680	542	568	777	387	760	722	530	648	778	385	(385)	498	(735)	812	748	760	754	824	632	710	763	727	477	825	726	
May 28-----	451	782	600	607	473	690	758	750	582	728	358	672	369	640	620	720	696	798	(404)	792	623	805	719	713	647	(752)	443	745	542	712	827	729	729	
May 29-----	453	553	493	267	497	738	486	421	647	228	508	792	576	746	637	584	140	796	787	379	832	748	513	489	338	280	(584)	762	740	298	676	302	580	699
May 30-----	477	639	753	331	627	684	224	378	607	744	755	766	768	744	599	439	581	631	343	818	729	724	725	135	465	736	780	508	775	728	451	476	87	770
May 31-----	435	731	650	412	506	561	409	207	571	479	657	741	346	510	720	75	576	703	791	(474)	579	744	809	496	291	455	703	451	754	178	182	727	812	743
June 1-----	750	454	555	676	554	601	224	260	558	681	632	725	597	725	614	400	222	844	666	693	726	577	606	---	453	513	697	751	262	787	746	664	710	700
June 2-----	626	323	585	---	604	497	669	680	655	552	697	692	692	682	631	410	697	367	702	790	755	524	535	---	743	735	689	779	824	781	734	813	640	712
Averages-----	542	584	619	506	539	(614)	487	475	595	511	626	627	632	709	568	559																		



# SOLAR RADIATION DATA

Table 33--Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyes. -- Continued

MAY 1952

1952	Los Angeles, Calif. (WBAS)	Lynn, Mass.	Madison, Wis.	Medford, Oreg.	Miami, Fla.	Nashville, Tenn.	Newport, R.I.	New York, N.Y.	North Head, Wash.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Ottawa, Ontario	Phoenix, Ariz.	Rapid City, S.Dak.	Riverside, Calif.	Salt Lake City, Utah	San Antonio, Tex.	Santa Maria, Calif.	Sault Ste. Marie, Mich.	Saville, N.Y.	Schenectady, N.Y.	Seabrook, N.J.	Seattle, Wash. (U. of Wash.)	Seattle, Wash. (WBAS)	Spokane, Wash.	State College, Pa.	Tampa, Fla.	Toronto, Ontario	Upton, N.Y.	Wake Island, Pacific Area	Washington, D.C. (WBAC)	Washington, D.C. (Amer. U.)	Winnipeg, Manitoba	
April 26-----	523	234	624	374	(757)	692	313	255	190	689	543	690	640	547	352	479	297	733	654	237	438	135	363	356	648	363	---	600	278	643	235	215	622	
April 30-----	733	847	613	174	550	715	746	704	621	706	606	760	733	249	705	650	660	731	696	737	604	686	429	429	125	680	---	652	723	705	701	675	604	
May 1-----	730	847	613	174	550	715	746	704	621	706	606	760	733	249	705	650	660	731	696	737	604	686	429	429	125	680	---	652	723	705	701	675	604	
May 2-----	730	847	613	174	550	715	746	704	621	706	606	760	733	249	705	650	660	731	696	737	604	686	429	429	125	680	---	652	723	705	701	675	604	
May 3-----	730	847	613	174	550	715	746	704	621	706	606	760	733	249	705	650	660	731	696	737	604	686	429	429	125	680	---	652	723	705	701	675	604	
May 4-----	730	847	613	174	550	715	746	704	621	706	606	760	733	249	705	650	660	731	696	737	604	686	429	429	125	680	---	652	723	705	701	675	604	
Averages-----	713	592	579	515	(648)	675	623	596	556	674	664	670	720	542	666	591	579	(723)	534	614	538	512	465	519	526	523	---	543	630	713	560	531	551	
Departures-----	---	-93	+132	+20	+	+209	+140	+169	+115	+180	+100	+129	+35	+	+105	+29	---	-47	-21	+143	+80	+67	+19	---	---	---	---	---	---	---	---	---	---	
May 6-----	611	275	657	354	659	581	280	321	---	548	71	254	749	---	668	698	726	493	(473)	234	289	493	607	350	594	---	---	---	---	---	---	---	---	
May 7-----	751	383	127	229	724	694	463	696	187	715	685	300	471	460	733	596	718	543	665	696	244	695	630	610	670	---	---	---	---	---	---	---	---	
May 8-----	752	728	184	633	628	633	693	622	298	593	728	659	744	79	733	597	664	761	655	687	502	408	77	115	594	---	---	---	---	---	---	---	---	
May 9-----	736	760	236	729	447	553	714	701	639	531	368	747	751	347	742	557	535	741	(601)	757	560	669	607	659	726	---	---	---	---	---	---	---	---	
May 10-----	736	639	202	659	532	316	465	295	455	314	---	718	765	687	730	691	619	726	212	302	425	500	313	374	585	---	---	---	---	---	---	---	---	
May 11-----	769	108	262	736	564	477	85	123	397	492	---	53	747	674	767	781	736	551	124	90	50	319	492	515	708	---	---	---	---	---	---	---	---	
May 12-----	687	484	334	473	297	257	543	247	489	270	---	97	720	642	730	679	547	115	372	112	417	505	553	708	122	---	---	---	---	---	---	---	---	
Averages-----	720	483	286	545	550	501	463	429	413	495	648	404	707	481	732	637	678	652	(406)	448	322	500	445	491	581	374	---	---	---	---	---	---	---	
Departures-----	---	-24	-170	-32	-49	+11	-20	-18	-28	-46	+102	-116	-7	-51	+169	+117	---	-12	-149	-57	-109	+24	+	---	---	---	---	---	---	---	---	---	---	
May 13-----	749	475	730	714	432	739	687	266	455	592	728	215	762	447	735	728	726	768	754	484	56	332	364	377	546	105	---	---	---	---	---	---	---	---
May 14-----	709	490	109	682	680	736	696	661	545	756	---	692	726	664	725	707	743	767	429	768	564	598	314	424	537	---	---	---	---	---	---	---	---	---
May 15-----	660	134	597	789	692	717	148	329	583	685	666	114	787	147	322	442	708	759	589	284	69	505	464	551	679	---	---	---	---	---	---	---	---	---
May 16-----	707	559	255	781	467	747	698	715	762	715	---	437	719	453	651	(454)	385	724	779	678	475	574	680	697	728	---	---	---	---	---	---	---	---	---
May 17-----	658	691	370	580	621	621	720	498	666	(643)	141	333	636	319	778	749	749	760	413	603	330	279	462	560	759	---	---	---	---	---	---	---	---	---
May 18-----	729	199	475	613	603	306	234	456	243	---	---	733	767	400	759	734	147	734	705	266	377	418	386	468	638	---	---	---	---	---	---	---	---	---
May 19-----	635	713	459	366	711	353	688	469	233	(430)	---	710	759	632	711	723	421	704	699	621	536	274	267	309	444	---	---	---	---	---	---	---	---	---
Averages-----	693	466	428	646	601	603	553	485	498	(637)	---	461	743	437	671	(648)	483	745	624	542	344	426	420	484	619	398	---	---	---	---	---	---	---	
Departures-----	---	+4	-44	-47	+2	+101	+65	+39	+	+64	---	-53	+16	-83	+145	+93	---	+132	+65	+57	-50	-31	-52	---	---	---	---	---	---	---	---	---	---	
May 20-----	548	155	436	(704)	660	190	149	60	196	272	794	285	698	405	696	461	755	767	512	68	92	102	278	393	567	---	---	---	---	---	---	---	---	---
May 21-----	664	299	301	805	635	740	401	389	622	664	488	729	743	677	500	101	548	307	377	514	154	154	154	154	154	---	---	---	---	---	---	---	---	---
May 22-----	590	527	63	775	605	651	512	673	786	737	796	364	776	464	747	189	598	703	748	669	381	614	650	688	786	---	---	---	---	---	---	---	---	---
May 23-----	591	692	393	771	658	344	728	736	777	675	279	754	784	77	759	706	425	752	472	772	555	697	725	790	781	---	---	---	---	---	---	---	---	---
May 24-----	506	635	132	774	771	322	585	308	554	240	595	564	774	767	751	737	62	711	317	473	408	218	712	765	778	---	---	---	---	---	---	---	---	---
May 25-----	596	118	650	800	697	681	113	49	600	428	---	49	784	555	760	510	664	599	593	47	62	218	660	615	709	---	---	---	---	---	---	---	---	---
May 26-----	564	194	682	795	580	667	237	225	787	552	808	542	721	599	707	692	663	674	748	273	235	420	724	797	741	---	---	---	---	---	---	---	---	---
Averages-----	580	374	380	(775)	658	556	389	349	618	505	654	385	758	447	726	540	557	707	581	400	262	403	579	632	705	312	---	---	---	---	---	---	---	---
Departures-----	---	-59	-113	+20	---	+19	-57	-102	+53	-50	+73	-136	+20	-98	+170	-89	---	-470	+72	-76	-118	-58	+58	---	---	---	---	---	---	---	---	---	---	---
May 27-----	364	710	300	783	439	755	757	753	758	764	---	812	760	571	679	776	282	602	385	808	570	739	713	776	---	---	---	---	---	---	---	---	---	---
May 28-----	553	774	601	805	593	409	771	614	325	627	---	571	752	711	715	722	479	307	730	531	689	730	739	713	776	---	---	---	---	---	---	---	---	---
May 29-----	658	445	701	823	542	---	637	459	829	157	---	519	706	496	733	595	692	545	499	631	197	622	416	459	---	---	---	---	---	---	---	---	---	---
May 30-----	483	406	279	772	539	719	539	447	541	581	810	749	663	815	727	369	99	291	580	201	580	201	580	201	580	---	---	---	---	---	---	---	---	---
May 31-----	406	273	497	359	447	541	581	447	541	581	810	749	663	815	727	369	99	291	580	201	580	201	580	201	580	---	---	---	---	---	---	---	---	---
June 1-----	608	305	768	829	405	714	232	55	716	647	535	318	655	531	700	---	735	606	693	218	46	200	636	711	653	---	---	---						

Accumulated Departures January 1 to June 2, 1952

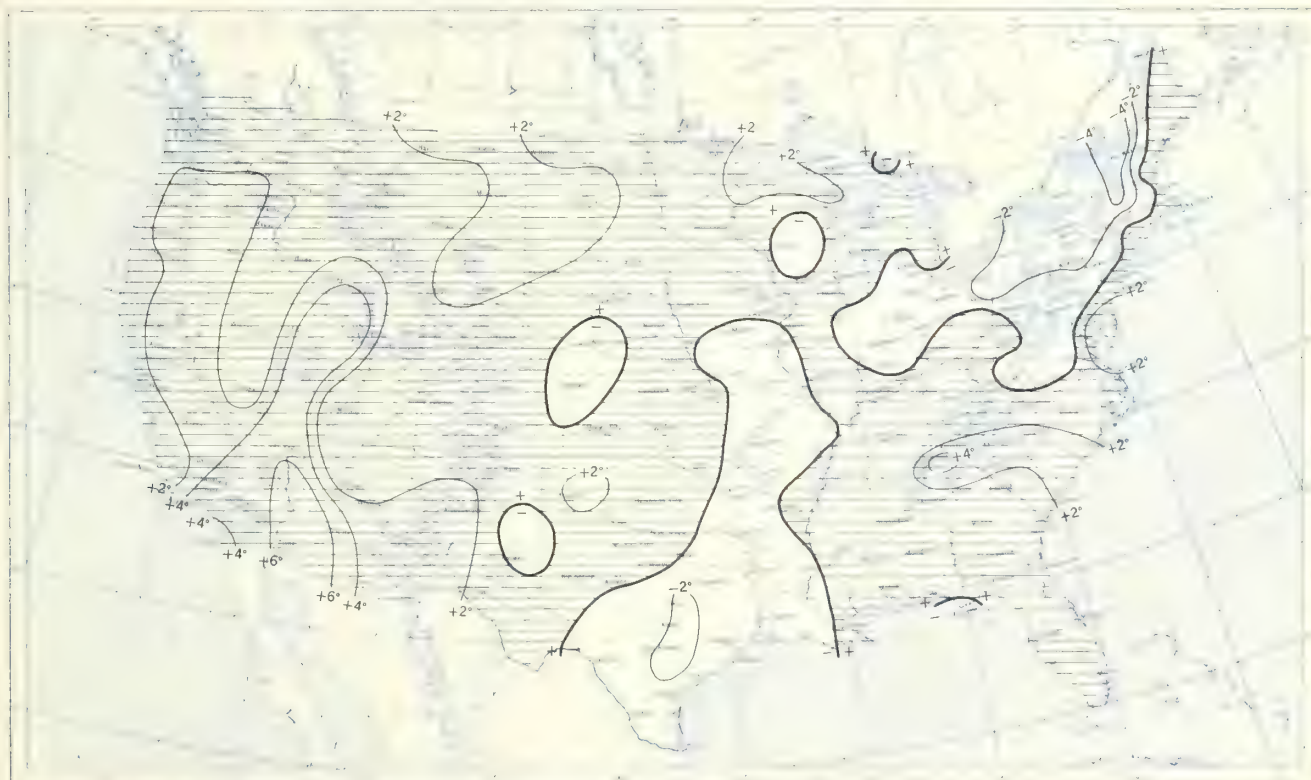
---	---	---	-1291	-665	---	-5782	-350	---	---	-42254	---	-2051	-1386	-4620	+7329	---	---	---	-588	+544	---	---	-140	-2401	---	---	---	-3010	---	---	-4225	+1491	---	-469	---	+539
-----	-----	-----	-------	------	-----	-------	------	-----	-----	--------	-----	-------	-------	-------	-------	-----	-----	-----	------	------	-----	-----	------	-------	-----	-----	-----	-------	-----	-----	-------	-------	-----	------	-----	------



Chart I. A. Average Temperature ( $^{\circ}\text{F.}$ ) at Surface, May 1952.



B. Departure of Average Temperature from Normal ( $^{\circ}\text{F.}$ ), May 1952.

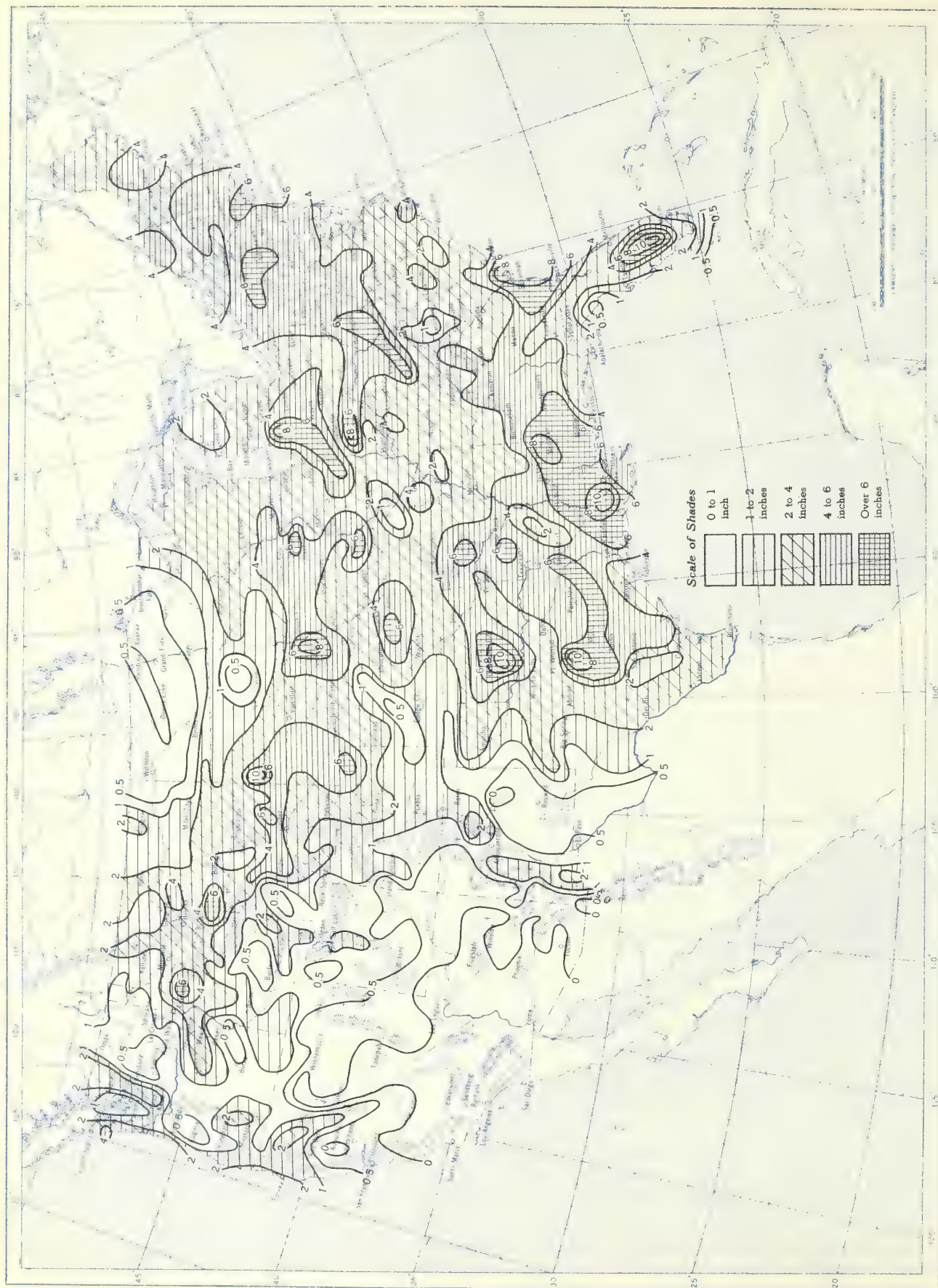


A. Based on reports from 800 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Normal average monthly temperatures are computed for Weather Bureau stations having at least 10 years of record.



Chart II. Total Precipitation (Inches), May 1952.



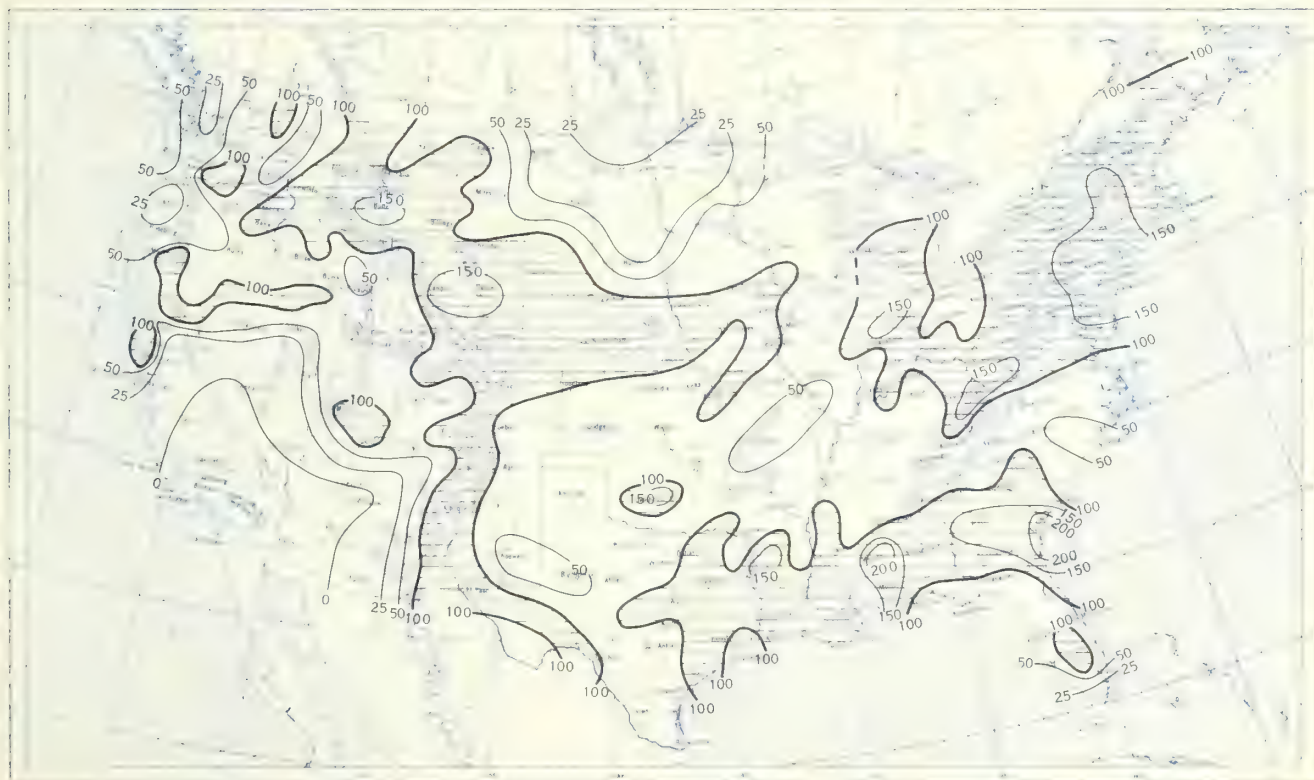
Based on daily precipitation records at 800 Weather Bureau and cooperative stations.



Chart III. A. Departure of Precipitation from Normal (Inches), May 1952.



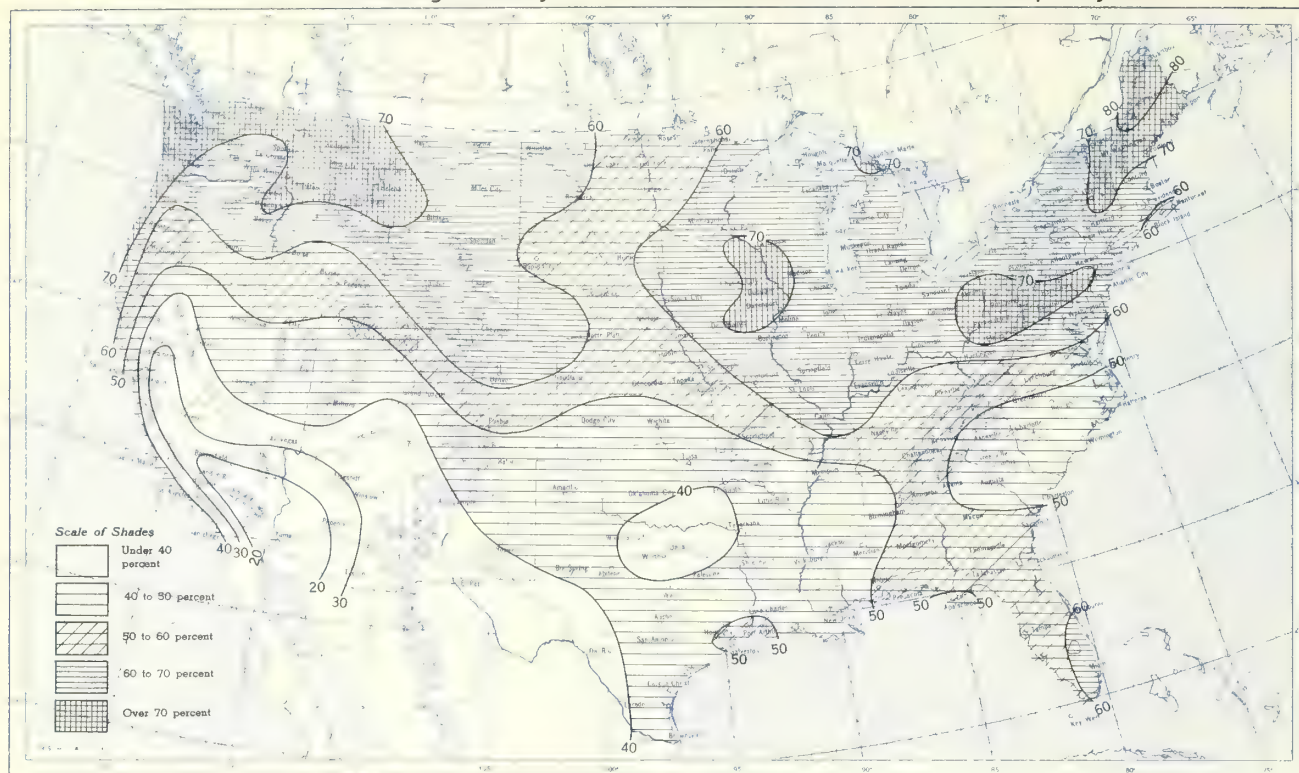
B. Percentage of Normal Precipitation, May 1952.



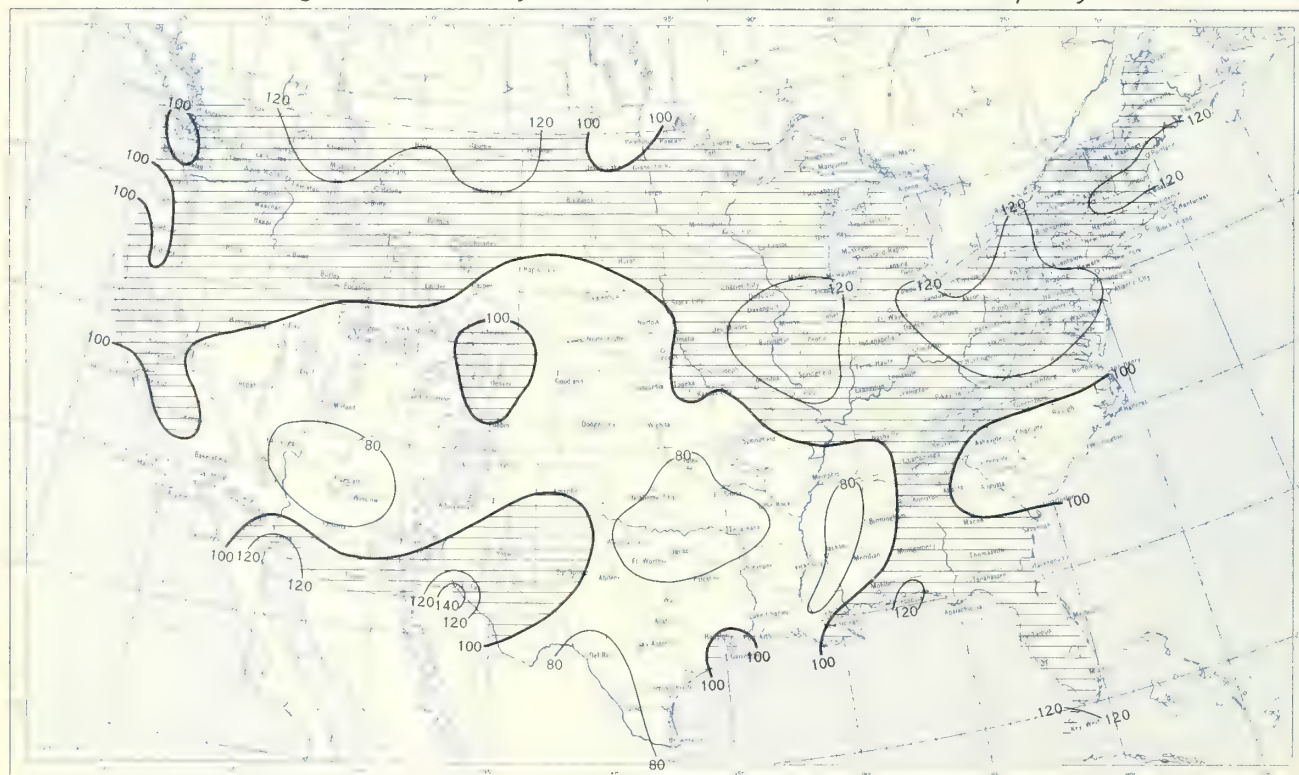
Normal monthly precipitation amounts are computed for stations having at least 10 years of record.



Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, May 1952.



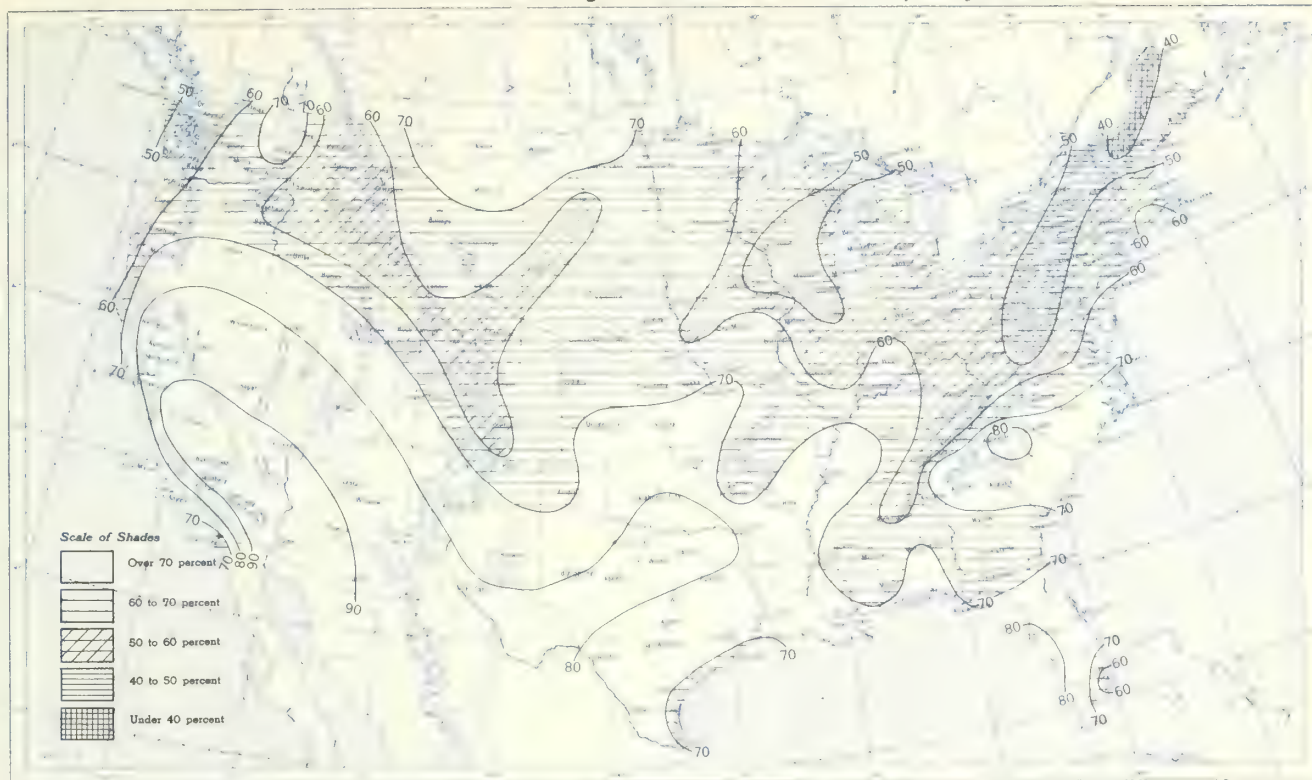
B. Percentage of Normal Sky Cover Between Sunrise and Sunset, May 1952.



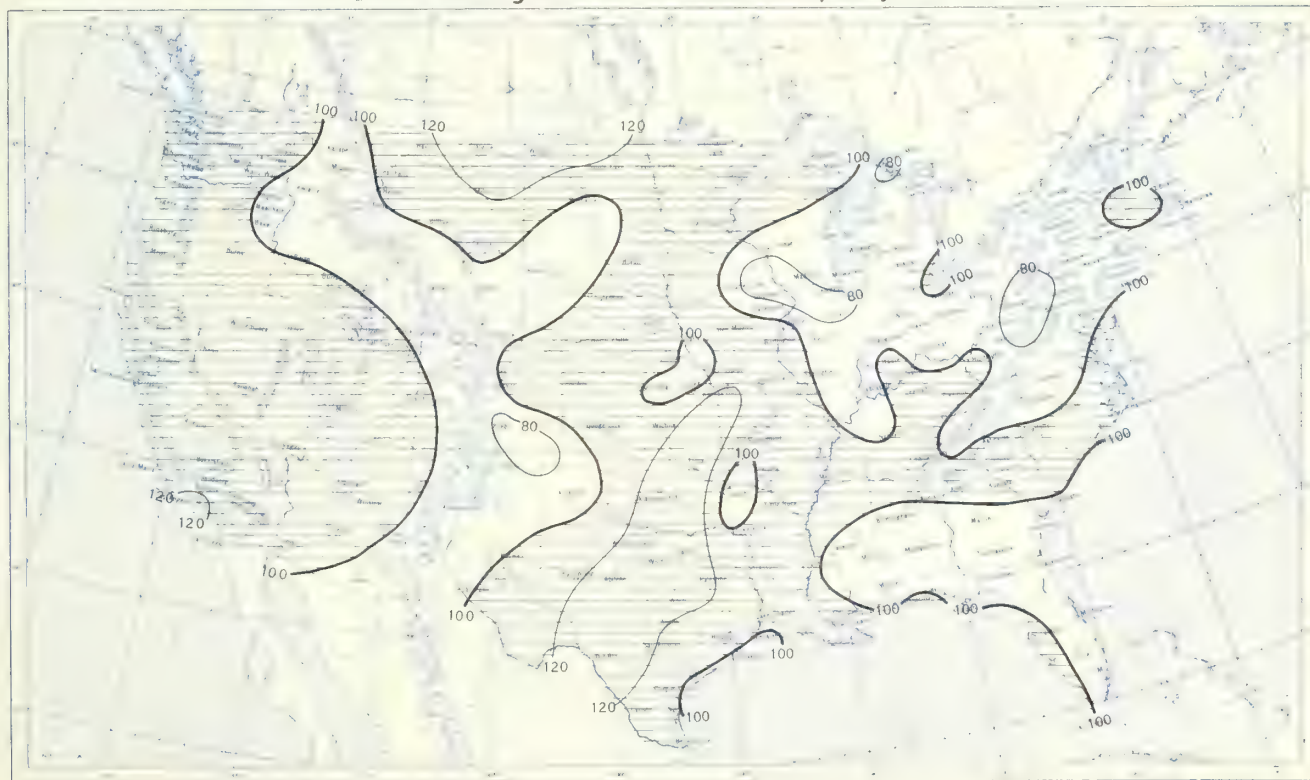
A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.



Chart VII. A. Percentage of Possible Sunshine, May 1952.



B. Percentage of Normal Sunshine, May 1952.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.



Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, May 1952. Inset: Percentage of Normal Average Daily Solar Radiation, May 1952.

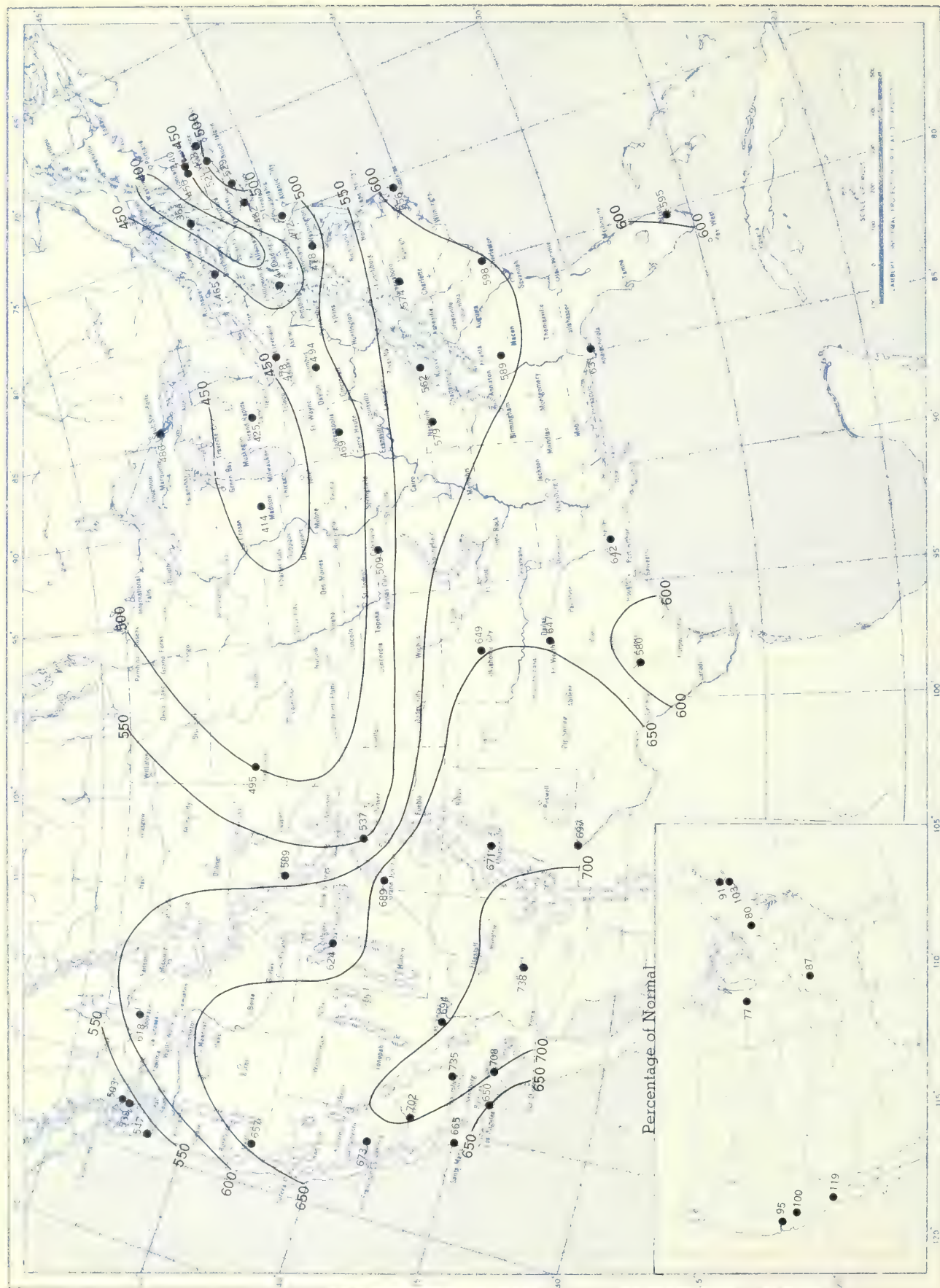
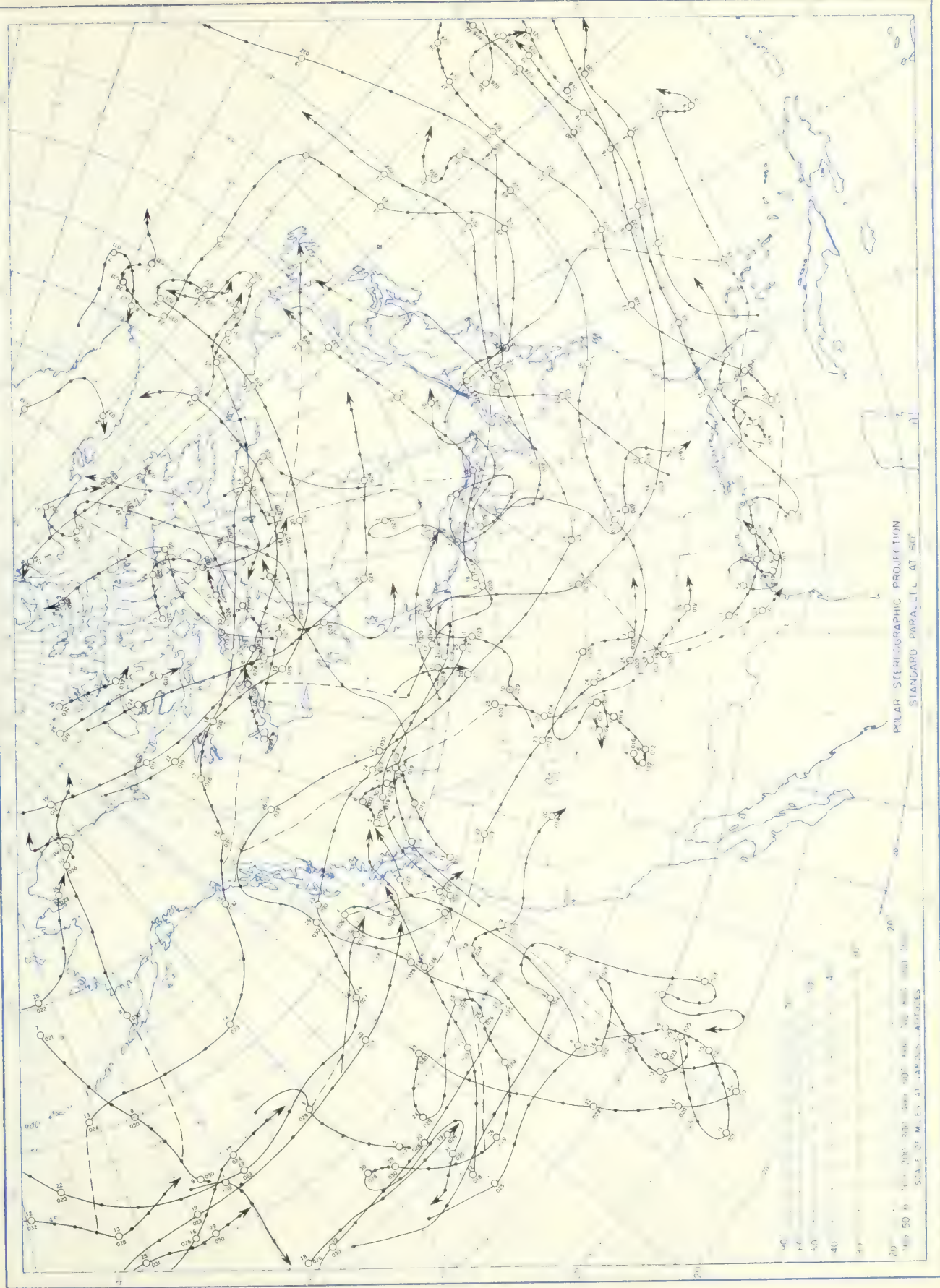


Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm.<sup>-2</sup>). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown. Normals are computed for stations having at least 9 years of record.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, May 1952.



Chart IX. Tracks of Centers of Anticyclones at Sea Level, May 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



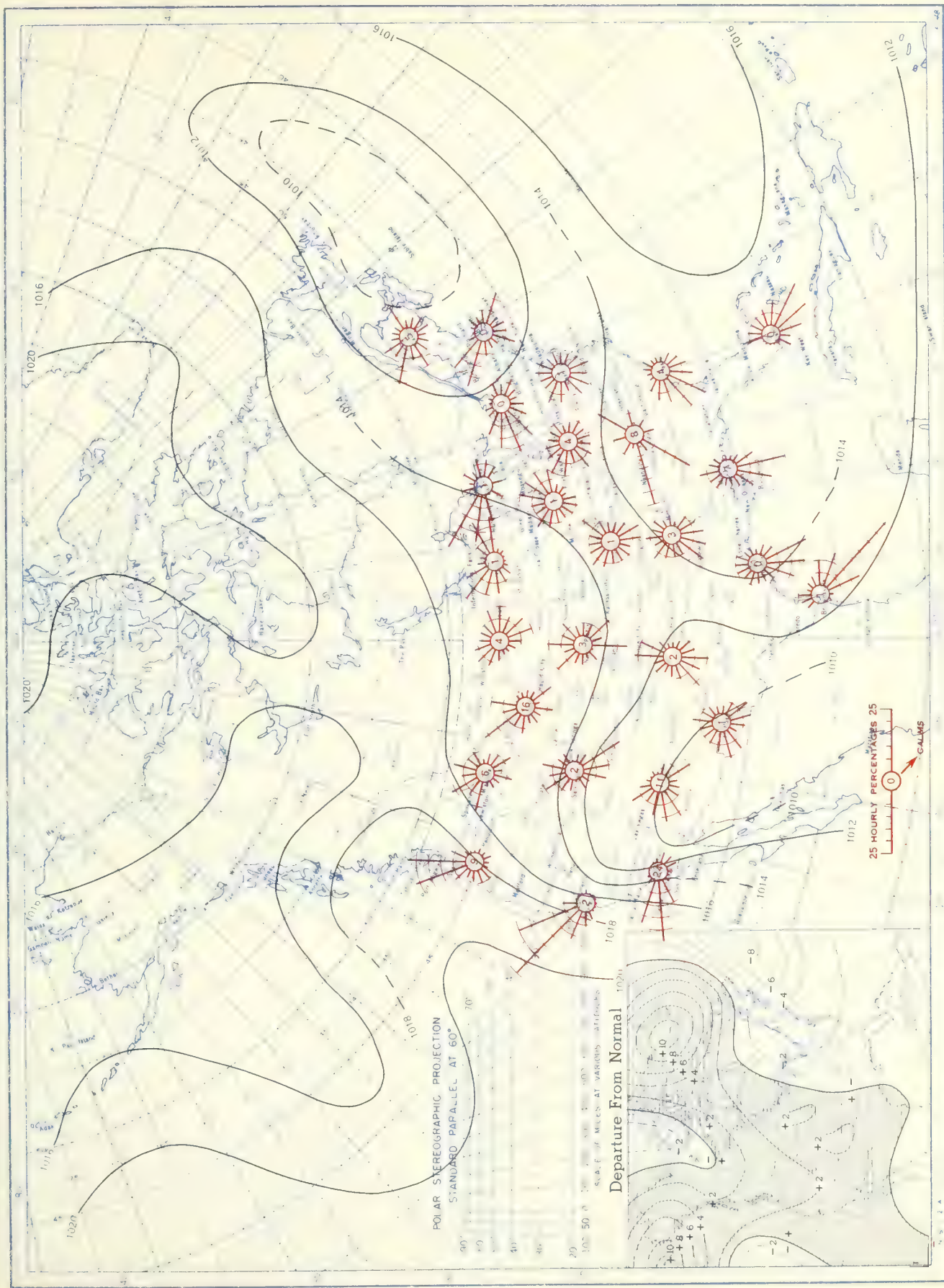
Chart X. Tracks of Centers of Cyclones at Sea Level, May 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. See Chart IX for explanation of symbols.



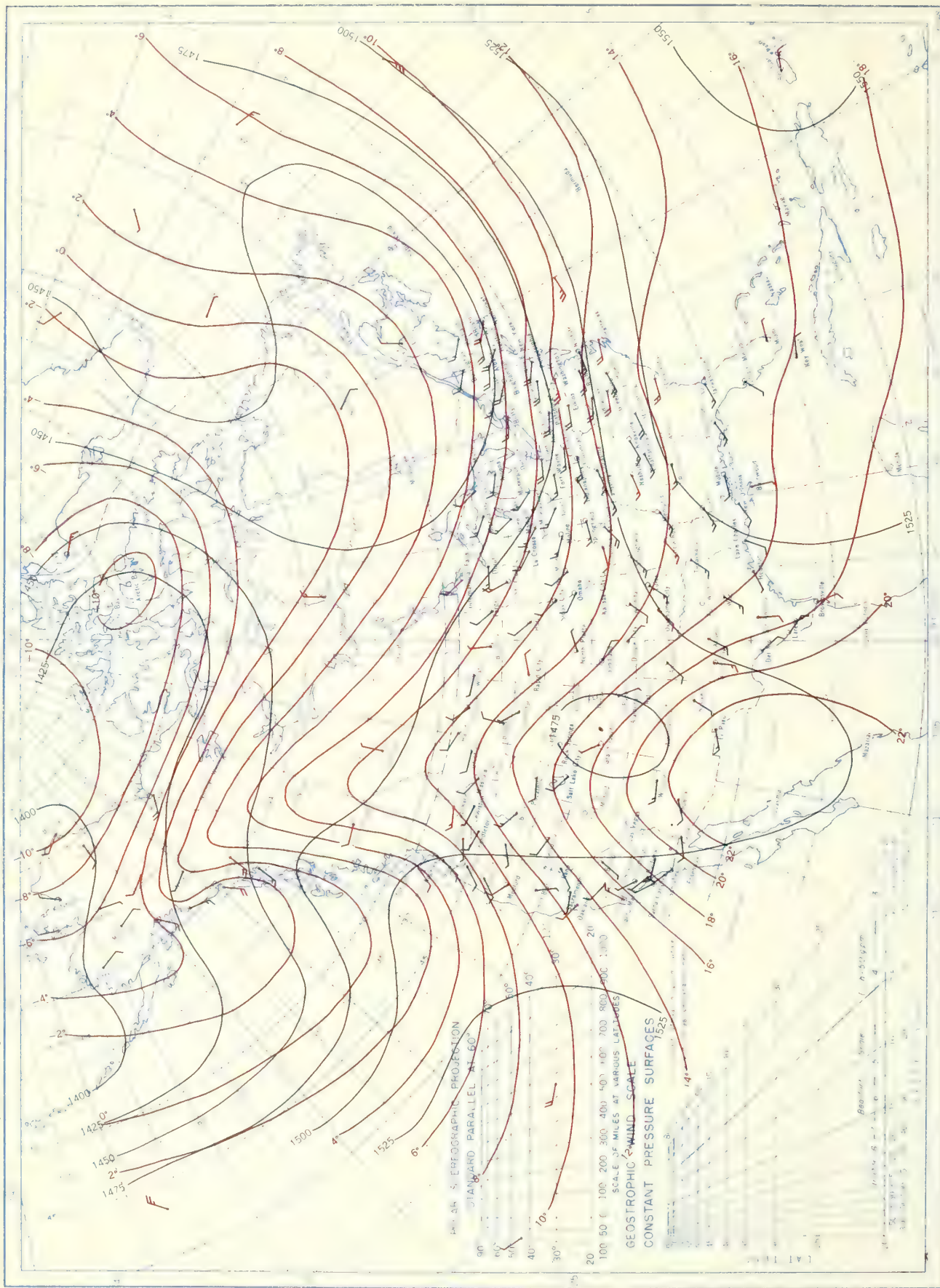
Chart A1. Average Sea Level Pressure (mb.) and Surface Windroses, May 1952.  
Average Pressure (mb.) from Normal, May 1952.



Average sea level pressures are obtained from the averages of the 7:30 a. m. and 7:30 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.



Chart XII. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 850-mb. Pressure Surface, Average Temperature in °C. at 850 mb., and Resultant Winds at 1500 Meters (m.s.l.), May 1952.

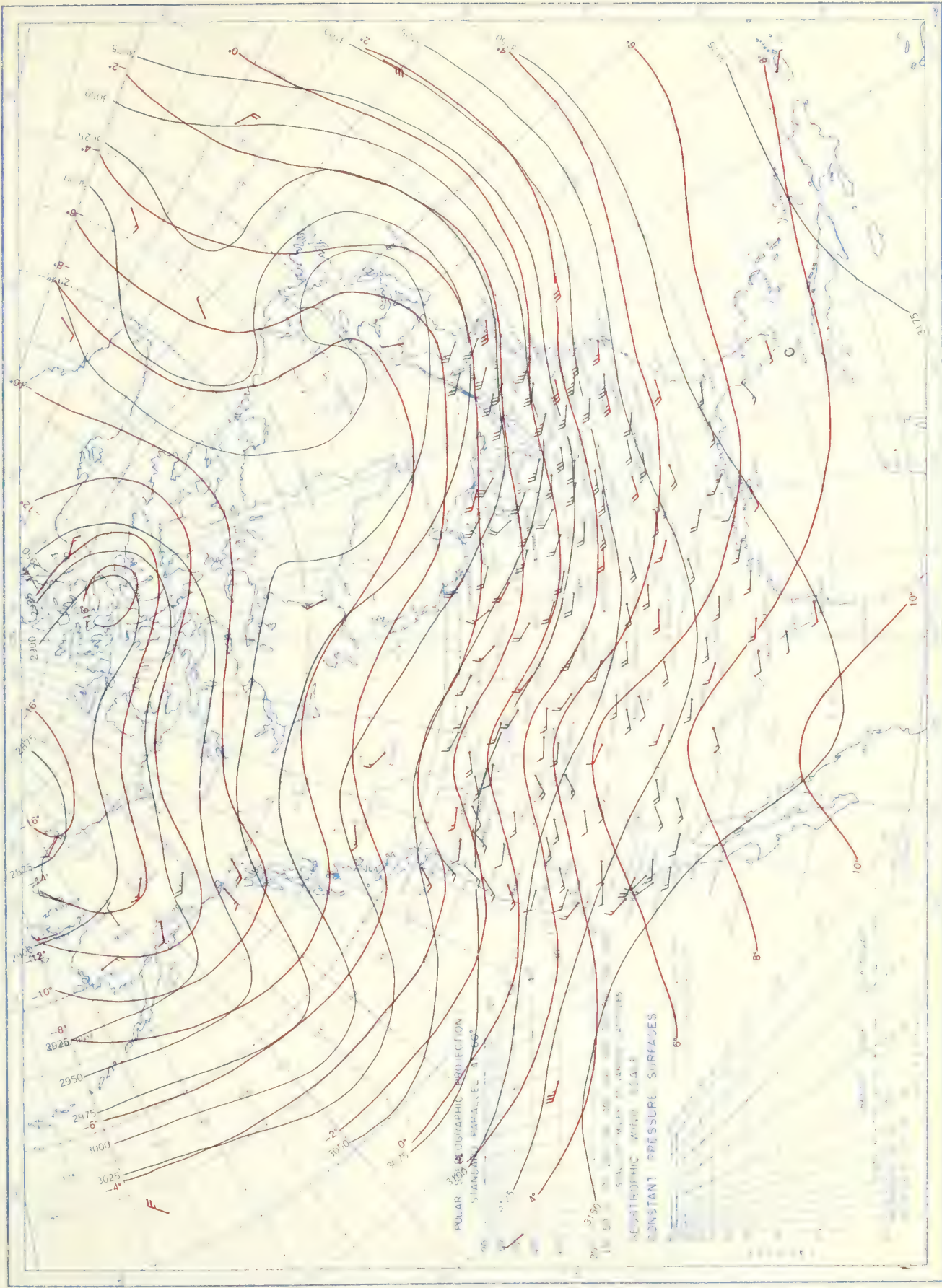


Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T.

Chart XIII. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 850-mb. Pressure Surface, Average Temperature in °C. at 850 mb., and Resultant Winds at 1500 Meters (m.s.l.), May 1952.



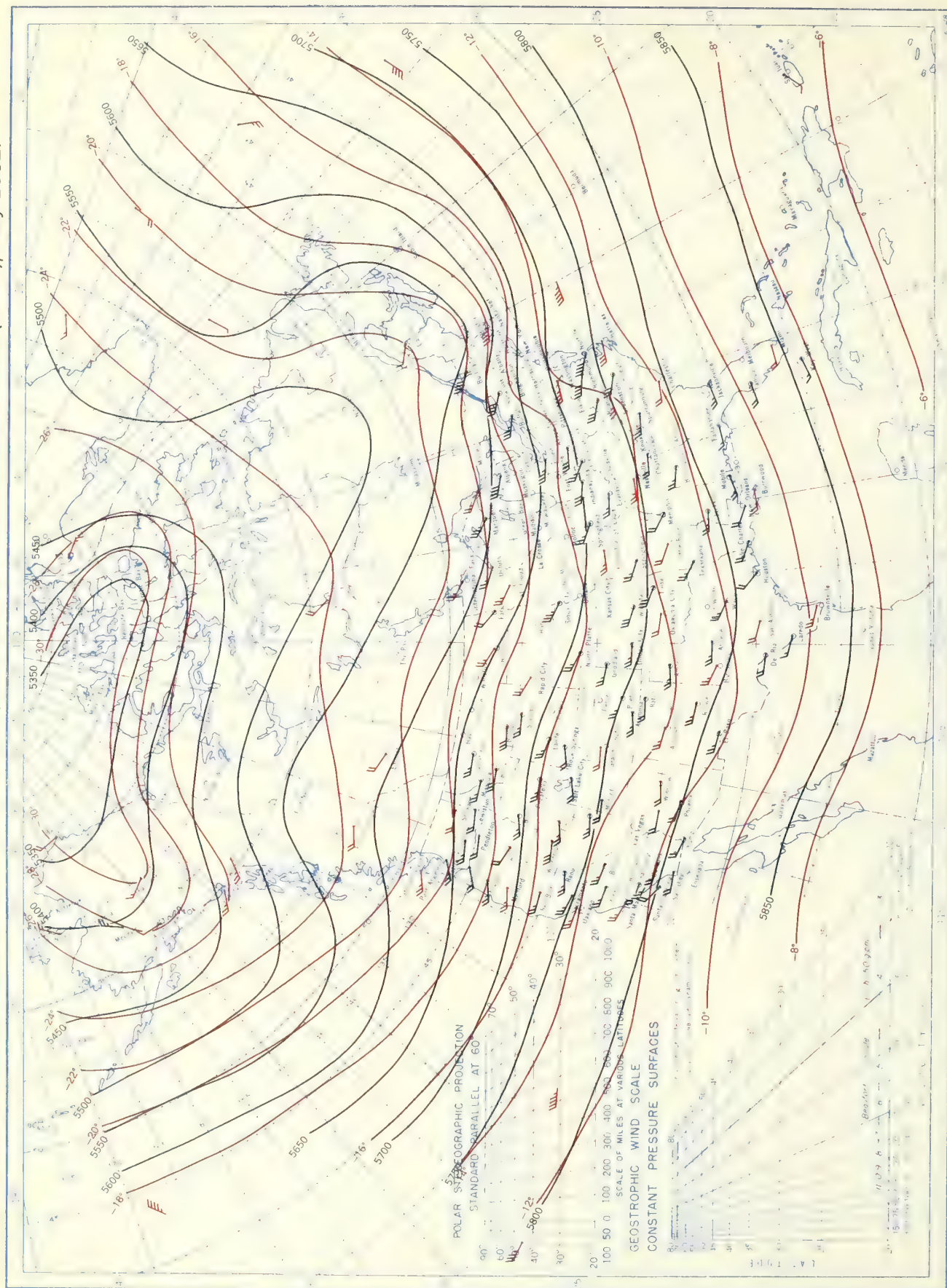
Chart XIII. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 100-mb. Surface, Average Temperature in °C. at 700 mb., and Resultant Winds at 3000 Meters (m.s.l.), May 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0300 G. M. T.

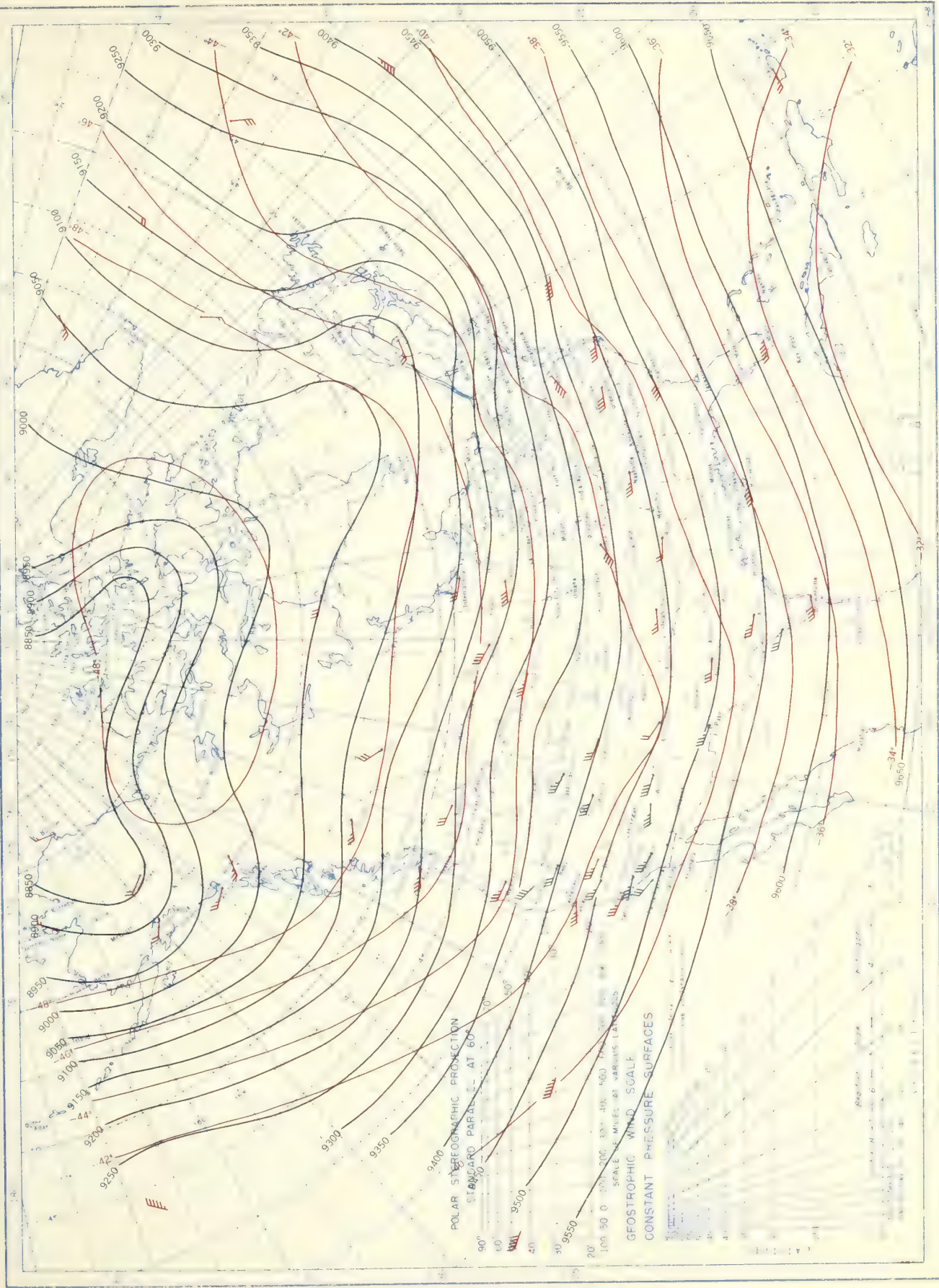


Chart XIV. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 500-mb. Pressure Surface, Average Temperature in °C. at 500 mb., and Resultant Winds at 5000 Meters (m.s.l.), May 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0300 G. M. T.





Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T.



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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

Volume 3 No. 6

JUNE 1952





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## CHARTS I-XV

NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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## CLIMATOLOGICAL DATA

### NATIONAL SUMMARY

Volume 3 No. 6

JUNE 1952

### GENERAL SUMMARY OF WEATHER CONDITIONS

The weather was extremely hot east of the Rocky Mountains, much colder than normal in the Pacific States, very dry in the Great Plains and Southern States, and sunnier than usual throughout most of the country. High pressure prevailed in the Southeast and extreme Southwest, but averaged below normal for the month in central and northern areas. Droughty conditions prevailed in North Dakota until the 28th, and were becoming quite severe in portions of the southeast and southern Great Plains at the end of the month. A snowstorm and late-season freeze occurred in the Northwest from the 11th to the 13th.

The temperature for the United States as a whole averaged  $71.8^{\circ}$ , which is  $2.5^{\circ}$  above the long-term mean,  $4.2^{\circ}$  above the average for June of last year, and only  $0.5^{\circ}$  below the highest June average on record,  $72.3^{\circ}$  in 1933. Monthly averages were above normal along and east of the Continental Divide, near normal in the Plateau Region, and below in the Pacific States. Departures averaged above normal by more than  $6^{\circ}$  in a belt extending from the western portions of the central Great Plains eastward almost to the Atlantic Coast, and ranged up to over  $9^{\circ}$  above in much of Kansas, Missouri, Tennessee, and small areas in several adjacent States. This was the hottest June on record in Colorado, Kansas, Missouri, Kentucky, Tennessee, North Carolina, South Carolina, Georgia and Florida, and the second hottest on record in Illinois, Oklahoma, Arkansas, Louisiana, Mississippi, and Alabama. High temperatures of  $112^{\circ}$  in Colorado and  $108^{\circ}$  in Illinois equaled the June records for those States, while North Carolina, South Carolina, and Georgia established new records of  $107^{\circ}$ ,  $108^{\circ}$ , and  $110^{\circ}$  respectively. The heat was unusually persistent, especially in Tennessee, southern Missouri, and in many sections of the Southeast. For example, the maximum temperature at Malden, Mo. rose to  $90^{\circ}$  or above on 28 days, equaled or exceeded  $100^{\circ}$  on 14 days, and averaged  $98^{\circ}$  for the month. At St. Louis, Mo.,  $104^{\circ}$  on the 28th set a new June record, and the monthly average of  $84.1^{\circ}$  was the highest for June at that station in 115 years of record. The average temperature at Cairo, Ill.,  $85.2^{\circ}$ , was a new record for any month at that station, exceeding the previous record (August, 1947) by  $0.4^{\circ}$ . Hatteras and Wilmington, N. C., and Macon, Ga., also recorded their highest temperatures for any month.

In contrast to the extreme heat in the East, this was the coolest June in California since 1923. A killing frost in several sections of the far Northwest and central Plateau Region during the first part of the second decade caused some damage to tender garden crops and fruit. On the 12th Crater Lake, Oreg., recorded  $11^{\circ}$  which set a new June record for that station and was the country's lowest temperature reading for the month. Light frost damaged tender garden crops near Flagstaff, Ariz., on the 22d. The month's highest tempera-

ture,  $114^{\circ}$ , was recorded at five stations in Arizona, and two in California on various dates during the second decade. The  $110^{\circ}$  maximum at Louisville, Ga., on the 27th was within  $1^{\circ}$  of the highest June temperature ever recorded east of the Mississippi River. In the far West the lowest temperatures of the month were recorded from the 10th to the 13th in northern sections and generally from the 15th to the 18th in southern sections, while east of the Rocky Mountains the coolest weather occurred during the first 3 days of the month except from about the 20th to 23d in the extreme Northeast. Highest temperatures generally were recorded on the 10th in the Northwest, near the middle of the month in the Southwest and sections of the lower Great Plains, during the first week in the extreme northern Great Plains, and east of the Great Plains during the last 5 days of the month.

Precipitation for the United States averaged 2.15 inches, 0.74 inch below the long-term mean and 1.29 inches below the June average of last year. This was the driest June on record in Arkansas, and one of the five driest for the nation as a whole. East of the Rocky Mountains precipitation was above normal only in New England, the Ohio and upper Mississippi Valleys, and extreme southern Texas. In these areas the monthly totals generally exceeded the normals by 2 or 3 inches. Elsewhere east of the Rockies, monthly totals generally were 2 to 3 inches less than normal in the south and 1 to 2 inches in the north. Moisture was much above normal in the far Northwest and in most of Utah, Arizona, and New Mexico, but below in central and southern Nevada and southern California. The greatest monthly totals were accumulated in the upper Mississippi Valley and ranged up to 13.06 inches at Caledonia, Minn. The serious drought that developed in North Dakota during April continued well into June and was not completely broken until soaking rains occurred on the 28th. In Wyoming a drought began to appear by the end of the month. The severe drought in west-central Texas at the end of May continued unabated through June, with many stations receiving only a few hundredths of an inch of rain or none at all. In eastern Colorado, central and western Kansas, southwestern portions of Nebraska and Oklahoma, northern and western Texas, Arkansas, northern Louisiana, northern and central Mississippi, northwestern Alabama, central and western Tennessee, western Kentucky, southern Missouri, and extreme southern Illinois, the rainfall was less than 25 percent of normal with monthly totals of less than an inch and in many cases only a trace or a few hundredths of an inch.

Snowfall, as usual, was limited to extreme northern areas and higher elevations in the far West. On the 11th and 12th unusually heavy snow for so late in the season fell in northeastern Oregon with depths of 5 inches at Enterprise (elevation



# GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

JUNE 1952

3,760 feet) and 6 inches at St. Joseph. At the same time some snow fell in northern Idaho and in the higher Cascade Mountains. Dell, Mont., recorded 4 inches of snow on the 20th, and several stations in North Dakota reported a trace.

Severe local storms were most frequent in north-central and northeastern sections of the country, and were usually associated with line squalls that developed during the passage of successive cold fronts. On the 9th and 10th one of these line squalls swept across the entire northeastern third of the Nation, with wind, hail, and lightning causing local damage that totaled several million dollars. The most destructive storm of the month was a hailstorm that caused losses of a million dollars in Huron, S. Dak., and \$2,500,000 in surrounding territory on the 24th. The month's most destructive tornado occurred in South Dakota on the 28th causing \$800,000 damage to farm property near Menno. During the latter part of the month, wheat, to the extent of several million dollars worth, was destroyed in western Nebraska. Storm damage in northeastern Ohio on the 29th was estimated at \$1,250,000. Hail and wind caused

nearly \$1,000,000 damage in North Carolina during the month, most of the losses being suffered by the tobacco crop. A tornado destroyed crops and property to the extent of \$500,000 at Williston, S. C., on the 12th. A flash flood at Albuquerque, N. Mex., on the 2d resulted in damage to streets, highways, buildings and equipment estimated at \$750,000.

Soaking rains near the end of the month that broke the drought in North Dakota and surrounding areas improved crops, but the grain outlook was for the shortest crop since 1936. In middle and southern areas east of the Rocky Mountains, warm weather was favorable for crops during the first 2 weeks; but the combination of heat and lack of rain had created a drought in many sections by the end of the month, and most growing crops, except cotton, were beginning to deteriorate. However, the weather was ideal for harvesting and the wheat crop in the lower Great Plains was garnered in record time. In the Main Corn Belt moisture was mostly ample and the crop was generally in good to excellent condition. West of the Continental Divide the agricultural outlook was good.



# CONDENSED CLIMATOLOGICAL SUMMARY

JUNE 1952

Table 1

Section	Temperature								Precipitation							
	Average	Departure from normal	Station	Monthly extremes				Average	Departure from normal	Monthly extremes				Station	Least	
				Highest	Date	Station	Lowest			Date	Greatest	Station				
	*F.	*F.		*F.			*F.		In.	In.		In.		In.		
Alabama	82.5	+4.1	Cordova	106	16	Cordova	53	3	2.27	-2.03	Center Grove	6.39	Waterloo	0.00		
Arizona	73.8	-1.6	5 Stations	114	15	Maverick	24	16	.62	+2.27	2 Stations	3.00	16 Stations	.00		
Arkansas	82.1	+5.0	Blytheville	109	28	Batesville Livestock	49	2	.49	-3.62	Athens	3.19	19 Stations	.00		
California	65.7	-4.2	2 Stations	114	17	Boca	19	12	.60	+2.29	Alturas RS	4.63	167 Stations	.00		
Colorado	66.3	+4.8	Burlington	112	15	Kremmling	21	18	.61	-.84	2 Stations	2.46	17 Stations	.00		
Connecticut	68.4	+2.3	Stamford	102	26	2 Stations	42	9	5.09	+1.53	Shepaug Dam	8.64	Westbrook	2.69		
Delaware	74.0	+2.4	4 Stations	100	26	Georgetown	47	13	2.91	-.88	Del. City Reedy Pt.	3.14	Wilmington	2.52		
Florida	82.6	+2.6	2 Stations	105	27	Lake City 2E	56	1	3.26	-3.38	Lake Alfred Exp. Sta.	8.57	St. Augustine	.22		
Georgia	82.9	+4.2	Louisville	110	27	Blairsville Exp. Sta.	50	2	2.72	-1.71	Flat Top	6.89	Moultrie	.34		
Idaho	60.2	-1.1	Grand View	101	9	Obsidian 4NNE	18	13	2.04	+.72	Winchester 1SE	6.02	Bliss	.30		
Illinois	77.8	+5.7	East St. Louis	108	29	Waukegan	44	1	4.64	+.62	Lacon	9.52	Brookport Dam	.17		
Indiana	76.2	+5.0	Evansville	105	29	2 Stations	44	1	4.84	+.88	Indianapolis SE Side	9.89	Mt. Vernon Wtr. Wks.	1.16		
Iowa	74.2	+4.7	7 Stations	101	11	Saratoga 2E	39	1	5.40	+.86	Winterset	9.39	Dubuque L & D 11	1.69		
Kansas	81.7	+7.9	Plainville	111	24	Johnson 10ESE	43	17	.84	-3.13	Paola	5.64	3 Stations	.00		
Kentucky	79.1	+5.1	Princeton	109	30	Grayson	45	3	2.63	-1.57	Hindeman Settlement School	6.92	Hicksville	.00		
Louisiana	82.1	+2.1	Lake Providence	108	29	Logansport	53	1	1.45	-3.14	Franklin	5.51	4 Stations	.00		
Maine	63.8	+2.2	Portland	90	15	Jackman	35	21	4.34	+.87	Fort Fairfield	7.38	Orono	2.15		
Maryland	74.3	+3.4	2 Stations	102	26	Oakland	35	2	3.19	-.82	Edgemont	5.59	Berlin	.65		
Massachusetts	67.7	+2.4	do	102	26	Willard Brook	38	20	3.88	+.35	Heath	7.91	Nantucket WB AP	.66		
Michigan	66.5	+2.6	do	100	16	Kenton U.S. Forest	28	1	2.63	-.78	Ironwood	7.97	Bay City Gas Plant	.50		
Minnesota	66.7	+2.3	Springfield	98	6	2 Stations	28	1	5.06	+.97	Caledonia	13.06	Ada	1.60		
Mississippi	82.6	+3.6	Corinth	106	28	Aberdeen	52	2	1.16	-3.00	Van Cleave	5.35	2 Stations	.00		
Missouri	80.8	+7.5	Union 1SE	109	29	Heritage	41	1	2.27	-2.53	Tarkio	9.57	3 Stations	.00		
Montana	60.9	+4.4	2 Stations	101	10	Garnet	22	13	2.04	-.76	Essex	5.32	Teigen 13NNE	.24		
Nebraska	75.7	+6.4	Curtis	113	15	4 Stations	40	1	2.48	-1.29	Bennet	9.18	2 Stations	T		
Nevada	62.6	-2.6	2 Stations	108	18	Sheldon	19	12	.66	+1.4	Orovada	3.86	6 Stations	.00		
New Hampshire	65.0	+1.9	Franklin Falls Dam	100	26	First Conn. Lake	32	21	4.91	+1.25	Fabyan	8.47	Plymouth 2E	3.05		
New Jersey	71.8	+2.6	2 Stations	104	26	Layton 3NW	35	13	3.86	+.05	Charlotteburg	9.56	Hurlington	1.23		
New Mexico	72.5	+2.8	do	110	24	Dulce	27	17	1.16	-.02	Cloudcroft 1	4.30	Truchas	.00		
New York	66.3	+1.2	4 Stations	102	26	Angelica	30	2	2.92	-.62	Rifton	7.95	Elmira CAA AP	.51		
North Carolina	79.2	+5.0	Morehead City	107	26	Mt. Mitchell	44	2	2.85	-1.78	Twentymile	8.26	Hatteras WB City	.50		
North Dakota	64.9	+1.8	Dickinson Exp. Sta.	102	7	2 Stations	30	1	3.21	-.30	Bansboro	7.79	Haley	1.11		
Ohio	74.2	+4.4	Napoleon	105	29	do	36	2	2.80	-1.17	Burr Oak Dam	7.62	Toledo WB AP	.12		
Oklahoma	83.0	+5.4	Alva	110	30	Goodwell	46	17	1.29	-2.73	Renfrow	5.49	3 Stations	.00		
Oregon	58.2	-1.6	Huntington	100	10	Crater Lake NP HQ	11	12	2.70	+1.27	Sundown Ranch	7.51	0 Ranch	1.05		
Pennsylvania	70.2	+2.1	Newport	104	27	Kane 1NNE	30	2	2.23	-1.90	Greensburg 3SE	7.79	Selinsgrove CAA AP	.31		
Rhode Island	67.8	+3.1	Providence WB City	101	26	Kingston	45	13	2.41	-.56	Greenville	3.47	Block Is. WB AP	1.32		
South Carolina	82.1	+4.2	Banberg	108	26	Clemson College	50	1	3.46	-1.20	Camden 2WSW	9.47	Clemson College	.81		
South Dakota	69.9	+3.8	Milesville SNE	105	15	Deerfield Dam	30	17	3.52	-.08	Ashton	9.26	Ellington 1NE	.93		
Tennessee	80.9	+6.0	2 Stations	108	28	Dover 1NW	48	2	1.96	-2.29	Fanner	10.29	3 Stations	.00		
Texas	81.9	+2.3	Presidio	113	16	2 Stations	50	1	1.23	-1.56	Raymondville	10.70	43 Stations	.00		
Utah	64.4	-1.1	Escalante River M	106	18	Clear Creek	22	16	1.10	+1.40	Clear Creek	2.90	Desert Exp. Range	.01		
Vermont	63.9	+7	Vernon	98	27	Lemington	33	21	6.33	+2.59	West Danville	8.86	Burlington WB AP	4.02		
Virginia	76.0	+4.1	2 Stations	106	26	Parlow 3WNW	42	3	2.72	-1.42	Waterford	6.31	Speedwell	.76		
Washington	59.1	-1.7	Richland 2NW	97	10	2 Stations	25	10	2.05	+.44	Quinalt RS	6.36	Tacoma WB City	.50		
West Virginia	73.3	+3.5	Moorefield	105	17	Canaan Valley	32	2	3.76	-.74	Alpena	7.25	Kayford	1.04		
Wisconsin	66.9	+2.1	Beloit College	97	28	5 Stations	29	1	4.80	+.61	Solon Springs	8.89	Ridgeland	1.33		
Wyoming	62.0	+3.3	Yoder	103	10	Bondurant	19	16	1.39	-.43	Redbird	5.88	Marshall 9SW	.20		
Alaska	20.7	-2.4	Ketchikan	57	30	Uniat WB AP	-46	15	1.15	+.22	Little Port Walter	24.05	Boundary	T		
Hawaii	69.6	-2.3	Puunene CAA	91	31	Haleakala RS	34	20	4.80	-.85	Kukui	30.00	11 Stations	.00		
Puerto Rico	79.2	+7	Carite Camp (2)	97	3	Garzas Dam	57	4	5.52	-.44	San Lorenzo (Espino)	12.56	San German	.98		

° Other dates also.  
 \* April 1952.  
 \*\* May 1952.



## CLIMATOLOGICAL DATA

Table 2

JUNE 1952

[illegible]

See reference notes at end of table.



## CLIMATOLOGICAL DATA

Table 2—Continued

JUNE 1952

State and station	Elevation (ground)	Pressure			Temperature										Precipitation										Wind				No. of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal				Highest	Date	Lowest	Date	No. of days	Max. 90° F. or above	Min. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	In	No. of days	Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile			Direction	Speed	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
							°F.	°F.	°F.	°F.															°F.	°F.			°F.	°F.	°F.									°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.



## CLIMATOLOGICAL DATA

Table 2-Continued

JUNE 1952

State and station	Elevation (ground) ft.	Pressure			Temperature							Precipitation										Wind		No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
											Max. 90° F. or above	Min. 32° F. or below						In.	In.	In.	In.			In.	In.						In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.

See reference notes at end of table.



## CLIMATOLOGICAL DATA

JUNE 1952

Table 2—Continued

State and station	Elevation (ground)	Pressure			Temperature							Precipitation								Wind				No. of days (sunrise to sunset)									
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max. 90° F or above Min. 32° F or below	Average dew point	Average relative humidity		Precipitation				Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Speed	Direction	Fastest mile							
														Total	Relative	Departure from normal	Greatest in 24 hours	No. of days .01 inch or more	With thunderstorms	Total	Max. depth on ground					Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover: tenths (sunrise to sunset)	Possible sunshine	
Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.	Date	°F.	%	In.	In.	In.	In.	In.	p. h.	p. h.	M	M	D	O- 3	4- 7	8- 10	0-10	%								
SOUTH CAROLINA																																	
Charleston CO	9	1013.5	-----	91	77	84.1	+5.2	103	26	68	1	18	0	--	--	1.74	-2.85	0.95	7	18	0.0	0	8.8	---	26	NW	9	11	13	6	4.8	-	
Charleston	41	1013.9	1015.9	92	72	82.0	+4.8	101	26	63	1	18	0	73	79	3.59	-1.60	1.31	11	19	T	0	7.1	SW	---	---	---	---	6	17	7	5.7	-
Columbia CO	332	1002.4	-----	95	72	83.6	+5.5	105	27	63	1	24	0	--	--	3.01	-1.16	.65	11	13	0	0	6.3	---	40	NE	19	15	14	1	4.3	7	
Columbia	217	1006.4	1014.5	96	71	83.8	----	104	26	61	1	27	0	70	70	2.44	-----	.60	12	21	0	0	5.9	SSW	---	---	---	---	12	15	3	4.5	-
Florence	146	1009.5	1014.9	94	71	82.4	+	103	26	60	1	22	0	--	--	5.74	-----	1.33	14	14	0	0	6.4	---	---	---	---	---	13	13	7	4.9	-
Greenville	1006	978.7	1014.8	94	70	82.3	+8.2	102	27	61	1	25	0	68	68	2.18	-2.37	.68	8	15	0	0	5.4	SW	38	E	20	6	17	7	5.5	8	
Spartanburg	801	986.1	1015.6	93	70	81.6	+	101	27	63	1	24	0	--	--	3.97	-.09	1.35	9	18	0	0	6.4	---	---	---	---	---	6	18	7	5.4	-
SOUTH DAKOTA																																	
Huron	1282	964.1	1009.7	84	58	71.2	+5.0	97	12	42	3	10	0	58	67	2.70	-1.09	1.33	10	14	T	T	12.2	SE	40	NW	16	12	8	10	5.0	7	
Rapid City	3215	898.4	1010.1	82	56	69.0	+4.8	99	15	47	1	6	0	53	61	3.04	.00	.92	9	10	T	0	9.8	NNW	50	NW	15	14	8	8	4.1	6	
Sioux Falls	1420	960.7	1011.0	85	58	71.2	+3.2	97	12	42	1	10	0	59	70	4.39	+0.2	1.11	15	18	T	0	11.1	SE	70	SW	23	13	8	9	4.8	-	
TENNESSEE																																	
Bristol	1519	962.8	1014.5	90	66	77.8	+4.8	97	25	57	2	18	0	66	71	2.23	-1.60	1.05	7	9	0	0	3.9	W	*30	N	9	14	12	4	4.4	-	
Chattanooga	670	988.5	1015.1	95	69	82.2	+9.0	104	28	59	2	26	0	69	71	1.02	-3.14	.48	7	12	0	0	4.6	SSW	35	S	20	11	12	7	5.1	7	
Knoxville	949	981.4	1015.8	93	70	81.4	+7.6	101	27	62	3	23	0	68	68	1.98	-2.12	.95	7	9	0	0	7.3	W	49	N	9	11	14	5	4.7	7	
Memphis CO	271	-----	-----	94	76	84.9	+7.3	98	28	65	2	27	0	--	--	.24	-3.31	.20	2	5	0	0	---	---	---	---	---	---	---	---	---	---	---
Memphis	263	1000.7	1014.8	97	73	84.6	+8.2	104	28	57	2	28	0	68	61	.76	-3.64	.44	2	6	0	0	9.1	SSW	38	N	30	21	7	2	2.9	-	
Nashville	577	995.6	1015.0	97	73	84.7	+9.1	106	30	58	2	28	0	67	60	.78	-3.22	.60	3	8	0	0	5.6	W	71	NW	30	13	12	5	4.1	7	
TEXAS																																	
Abilene	1752	951.9	1011.0	96	71	83.5	+5.9	101	15	61	1	28	0	62	54	.04	-2.95	.04	1	2	0	0	16.0	SSR	42	S	25	20	8	2	2.7	9	
Amarillo	3590	887.2	1008.8	94	66	80.2	+8.8	103	15	56	1	21	0	57	55	1.75	-1.09	.92	7	6	0	0	13.1	S	52	SW	13	15	12	3	3.9	7	
Austin	515	993.2	1014.5	92	72	81.6	+3.4	96	26	63	1	22	0	69	74	1.88	-.56	1.25	8	4	0	0	9.9	S	36	NE	5	10	14	6	4.9	8	
Big Spring	2533	924.5	1010.2	96	72	83.8	+3.3	102	16	65	1	28	0	59	50	.04	-1.87	.04	1	0	0	0	16.8	S	---	---	---	---	17	11	2	3.1	-
Brownsville	16	1011.2	1013.5	89	75	81.6	----	93	15	66	2	11	0	73	82	3.63	+4.5	2.33	10	5	0	0	12.4	SE	30	E	6	4	18	8	6.2	7	
Corpus Christi	40	1013.5	1014.5	90	74	82.2	+2.7	95	20	69	2	18	0	74	83	.46	-2.13	1.20	6	2	0	0	12.8	SE	28	SE	5	6	18	8	5.7	7	
Del Rio	487	995.6	1013.7	95	74	84.9	+4.5	100	18	68	6	27	0	62	60	.37	-3.54	.36	2	1	0	0	15.7	S	38	S	24	19	11	0	2.9	9	
El Paso	957	978.3	1017.7	96	73	84.5	+4.1	102	5	64	2	27	0	66	62	.26	-2.29	.18	4	0	0	0	10.7	ESE	38	SE	28	2	16	7	5.5	6	
Fort Worth	3920	883.5	1007.7	95	70	82.7	+4.7	101	16	59	3	27	0	50	39	1.14	+4.56	.67	7	7	0	0	9.1	S	47	SE	2	17	6	7	3.6	8	
Galveston CO	688	989.8	1013.4	97	74	85.3	+5.4	101	18	67	7	29	0	66	60	T	-3.35	T	0	2	0	0	18.3	S	*37	SSW	24	22	7	1	2.3	-	
Galveston	7	-----	-----	86	78	82.0	+1.3	90	28	73	30	1	0	--	--	1.95	-2.42	1.78	3	---	0	0	11.3	---	30	E	7	---	---	---	---	---	---
Houston CO	7	1015.2	1015.9	86	77	81.8	+1.1	89	28	71	7	0	0	76	84	.57	-3.80	.25	4	4	0	0	10.8	S	---	---	---	---	12	10	8	4.5	-
Houston	41	1010.5	-----	90	74	82.2	+1.8	95	28	67	1	21	0	--	--	2.48	-2.09	1.24	5	7	0	0	9.0	S	---	29	SE	6	5	18	7	5.8	-
San Antonio	41	1012.9	1015.2	91	72	81.3	+1.4	92	18	68	6	27	0	72	79	3.74	+4.2	1.70	4	5	0	0	11.0	S	---	---	---	---	---	---	---	---	---
Lubbock	500	997.3	1012.1	95	75	85.0	----	100	16	68	6	27	0	71	69	4.50	+2.58	3.16	5	3	T	0	17.3	SE	*61	NE	6	8	14	8	5.2	-	
Palestine CO	3238	901.1	1009.3	95	67	80.6	+4.4	103	15	56	1	26	0	58	54	1.94	-.53	1.12	6	7	T	0	16.7	S	*37	E	17	17	9	4	3.5	-	
Port Arthur CO	491	997.3	-----	90	72	81.2	+2.2	96	28	67	1	22	0	--	--	.63	-3.00	.28	4	3	0	0	7.5	---	21	SE	29	12	14	4	4.6	8	
Port Arthur	5	1014.6	-----	90	76	82.6	+1.6	94	28	68	1	14	0	--	--	2.15	-2.67	.88	7	4	0	0	11.0	---	38	E	29	14	13	3	3.8	8	
San Angelo	5	1014.9	1015.7	91	71	80.9	----	95	18	65	1	22	0	73	81	3.23	-----	1.24	7	6	0	0	8.3	S	---	---	---	---	15	12	3	4.4	-
San Antonio	1903	945.8	1011.4	94	71	82.5	+1.6	100	16	61	1	28	0	61	55	.07	-1.90	.05	2	2	0	0	13.6	S	*30	SSE	27	19	9	4	3.3	-	
Victoria	782	989.2	1013.9	92	72	81.9	+9.7	97	20	62	2	19	0	68	69	1.86	-.60	.85	8	5	0	0	10.4	SE	31	SE	21	5	18	3	5.8	6	
Wichita Falls	109	1009.8	1014.5	91	73	81.6	+6.9	96	29	65	5	18	0	72	81	2.72	-.49	2.29	6	5	0	0	8.8	---	43	N	5	14	9	5	4.1	-	
Wichita Falls	504	995.3	1013.5	93	72	82.8	+2.2	97	13	65	4	23	0	70	72	1.10	-2.06	.86	4	0	0	0	11.3	S	---	---	---	---	14	13	3	4.1	-
Wichita Falls	1027	975.3	1010.9	97	74	85.4	+3.7	102	19	62	1	27	0	64	54	.80	-2.69	.51	3	3	T	T	13.1	S	*40	NNW	4	24	6	0	2.2	-	
UTAH																																	
Milford	5028	843.6	1010.2	83	47	65.3	-.5	92	17	37	16	4	0	--	--	.35	+0.9	.25	2	0	0	0	---	---	---	---	---	---	20	4	6	2.8	-
Salt Lake City	4222	863.5	1008.4	85	55	67.8	+2.1	94	18	41	16	6	0	40	41	1.07	+3.4	.94	5	3	T	0	11.5	SSE	40	SW	29	19	5	6	3.3	8	
VERMONT																																	
Burlington	331	996.6	1011.3	76	55	65.6	-.1	90	26	47	8	1	0	54	66	4.02	+6.4	1.74	12	7	0	0	9.5	SSW	40	W	24	5	17	8	6.1	6	
VIRGINIA																																	
Cape Henry CO	16	1012.9	1013.5	85	70	77.8	+4.9	98	19	58	3	10	0	--	--	1.81	-2.15	.81	10	6	0	0	10.5	---	47	NW	29	12	8	10	4.8	7	
Lynchburg	947	981.7	1014.9	89	65	76.9	+3.8	99	27	55	3	15	0	64	67	3.32	-.47	1.79	10	10	0	0	8.1	SSW	43	NW	27	10	10	10	5.2	7	
Norfolk CO	141	1010.8	1014.1	89	71	79.7	+5.3	103	26	60	3	14	0	--	--	2.29	-1.93	1.00	9	9	0	0	8.6	---	34	NW	29	---	---	---	---	---	---
Norfolk	25	1012.9	1014.1	88	69	78.6	+5.9	100	26	56	3	14	0	66	69	1.33	-2.89	.81	5	8	0	0	8.5	SW	---	---	---	---	7	12	11	5.3	-
Richmond CO	162	-----	-----	89	67	78.0	+3.9	97	18	54	3	13	0	--	--	4.29	-.39	1.75	8	0	0	0	---	---	---	---	---	---	12	7	11	---	---

See reference notes at end of table



## CLIMATOLOGICAL DATA

Table 2--Continued

JUNE 1952

State and station	Elevation (ground)	Pressure			Temperature							Average relative humidity		Precipitation						Wind				No. of days (sunrise to sunset)										
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date			Max. 90° F. or above	Min. 32° F. or below	Average dew point	Total	Departure from normal	Greatest in 24 hours	No. of days	Snow, Sleet, Hail	Average hourly speed	Prevailing direction	Fastest mile			Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine			
												Speed	Direction											Date										
		Fl.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	%	In.	In.	In.	In.	In.	p. h.	M. p. h.	M.	M.	M.	0-3	4-7	8-10	0-10	%						
PACIFIC AREA																																		
Canton Island	8	1008.8	1009.2	91	79	85.0	----	86	15	76	3	24	0	75	77	2.10	-----	0.79	16	1	0.0	0	-----	---	---	---	8	13	9	5.7	---			
Hilo	28	1016.6	1018.0	79	68	72.8	-----	83	7	63	7	0	0	68	83	9.71	-----	.92	28	0	0.0	0	5.3	WSW	19	E	9	1	2	27	8.9	---		
Honolulu CO	12	-----	-----	80	71	75.5	-1.1	82	7	69	9	0	0	---	---	.48	-0.44	-.16	0	0	7	---	---	---	---	---	---	---	---	---	---	---		
Honolulu	7	1017.3	1018.0	82	71	76.5	-----	84	7	70	3	0	0	64	68	13	-----	.03	8	0	0	14.5	ENE	31	NE	17	6	14	10	5.8	71			
Koror	117	1004.1	1007.9	88	76	81.5	-----	92	14	74	24	7	0	---	---	12.49	-----	1.66	25	1	0.0	0	-----	---	---	---	---	---	10	20	20	8.4	---	
Lihue	115	1013.2	1018.3	81	70	75.5	-----	82	24	67	23	0	0	66	76	.66	-----	.14	21	0	0	14.7	NE	28	NE	23	1	7	22	7.8	63			
Moen Island,																																		
Truk Group	3	1010.2	1010.6	86	75	80.2	-----	89	3	72	21	0	0	---	---	16.50	-----	3.10	29	0	0	0	-----	---	---	---	0	5	25	9.0	---			
Ponape	109	1006.1	1011.3	88	74	81.1	-----	90	16	70	1	10	0	---	---	18.99	-----	2.97	28	0	0	0	-----	---	---	---	0	12	18	8.1	---			
Wake Island	12	1014.2	1014.6	87	78	82.1	-----	89	27	73	4	0	0	74	76	1.93	-----	.47	14	0	0	9.5	E	---	---	---	10	16	4	4.8	---			
Yap	51	1007.8	1009.7	87	76	81.4	-----	92	6	73	20	9	0	---	---	20.75	-----	3.54	28	1	0	0	-----	---	---	---	0	5	25	9.2	---			
WEST INDIES																																		
San Juan, P.R. CO	47	-----	-----	86	75	80.3	+6	91	1	73	22	4	0	---	---	5.56	+26	2.86	15	10	---	0	-----	---	---	---	---	---	---	---	---	---		
San Juan, P.R.	9	1014.2	1016.4	87	75	81.2	-----	91	4	73	22	8	0	74	79	6.22	-----	3.20	16	10	0	10.8	ESE	26	S	3	3	11	16	7.0	64			
ALASKA																																		
Anchorage	134	1007.5	1012.4	61	43	51.9	-1.8	69	27	32	6	0	1	42	69	.44	-.45	.23	4	1	0.0	0	5.7	SW	32	S	6	1	8	21	8.2	58		
Annette Island	110	1010.5	1014.6	56	46	50.8	-4.0	69	27	40	7	0	0	46	84	1.14	-.58	1.10	16	0	0	9.2	SE	*36	SE	3	2	6	22	8.5	---			
Barrow	22	1016.9	1017.7	55	28	31.5	-2.7	40	12	21	5	0	30	30	94	.35	+0.7	.29	3	0	T	8	13.1	ENE	28	E	10	2	5	23	8.5	---		
Bethel	21	1008.8	1010.4	59	41	50.1	-2.5	75	17	30	4	6	4	43	78	1.33	+1.3	.38	7	0	2.2	10.5	SW	*31	ESE	6	2	7	23	7.8	---			
Cordova	40	1011.2	1013.0	56	40	48.0	-2.1	71	10	29	6	1	3	43	79	3.33	-1.53	.79	13	0	T	0	3.8	ESE	---	---	---	2	4	24	8.6	---		
Fairbanks	436	992.9	1009.6	70	47	58.4	+4	83	27	35	1	16	0	45	64	1.21	-.22	21	16	T	0	5.0	SW	*24	WNW	12	2	9	19	7.7	---			
Galena	120	1004.7	1009.6	67	48	57.4	+1	80	27	37	4	12	0	41	57	1.07	-.28	.67	6	2	T	0	5.8	NW	*44	W	21	4	10	16	6.8	---		
Gambell	25	1009.5	1010.7	40	32	35.8	-2.1	54	24	21	2	0	15	32	87	1.01	+5.0	.59	8	0	1.3	7	14.1	NE	*40	ESE	9	3	4	23	8.3	---		
Juneau	15	1012.2	1013.0	61	43	52.2	-0.8	73	10	35	3	4	0	44	76	2.44	-1.22	.59	15	0	0	0	7.7	N	23	SE	1	5	24	8.5	27			
Kotzebue	10	1010.5	1011.2	48	36	42.0	-1.3	69	27	27	2	0	9	37	82	.20	-.32	.08	7	0	T	4	11.8	W	*30	W	13	6	11	13	6.4	---		
McGrath	334	997.6	1010.4	66	43	54.5	-1.0	80	27	32	1	12	1	42	62	.67	-1.45	.17	9	4	T	0	6.2	SW	*25	SE	27	3	10	17	7.3	---		
Nome	13	1010.2	1011.0	55	39	46.5	+9	75	27	28	5	2	6	41	80	.91	-1.17	.41	7	0	.2	3	9.9	SW	*32	E	10	6	4	20	7.1	---		
Northway	1713	946.8	1009.6	67	45	55.5	-4	78	28	36	12	15	0	41	63	3.72	+1.90	.87	17	15	T	8.1	NW	*23	NW	12	1	6	23	8.2	---			
St. Paul Island	22	1006.4	1007.4	43	36	39.4	-1.9	51	16	27	2	0	5	37	62	2.93	+1.53	.63	20	0	T	---	---	---	---	---	---	---	---	1	2	27	9.4	---
Uniat	337	1004.1	1017.2	46	33	39.2	-3.8	60	23	25	1	0	12	35	85	.32	.32	19	4	0	T	6	9.7	E	---	---	---	---	1	7	22	8.3	---	
Yakutat	28	1012.5	1013.6	55	41	47.9	-2.2	76	10	32	3	1	14	44	86	3.72	-1.10	1.27	15	0	0	0	7.9	ESE	*31	ESE	7	4	6	20	7.9	---		

Data from airport unless otherwise specified. CO indicates data from city office.

\* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

<sup>c</sup> Other dates also.

† Peak gust.

# Max. 70°F. or above for Alaskan Stations.



# HEATING DEGREE DAYS

(Base 65°F.)

JUNE 1952

Table 3

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season									
	This month	Period July through this month	Long term mean July through this month		This month	Period July through this month	Long term mean July through this month		This month	Period July through this month	Long term mean July through this month		This month	Period July through this month	Long term mean July through this month							
ALABAMA																						
Birmingham	0	2505	2532	Burlington	3	6234	5813	Albuquerque	6	4330	4420	Del Rio	0	1120	1500							
Mobile (CO)	0	1327	1537	Charles City (CO)	21	7676	7624	Clayton	3	5266	4949	El Paso	0	2540	2532							
Mobile	0	1433		Davenport (CO)	5	6210	6224	Raton	15	6349		Ft. Worth	0	2035	2353							
Montgomery (CO)	0	1800	2052	Des Moines	1	6807	6417	Roswell	0	3311	3578	Galveston	0	821	1170							
Montgomery	0	1947	2071	Dubuque	19	7498	6910					Galveston	0	848								
ARIZONA																						
Flagstaff	207	7602	7182	Keokuk (CO)	0	5654	5663	Albany	21	6775	6686	Houston (CO)	0	1005								
Phoenix (CO)	0	1540	1433	Sioux City	1	7343	6982	Bear Mountain (CO)	44	6448		Laredo	0	1084	1331							
Phoenix	0	1649		KANSAS																		
Prescott	11	4755		Concordia (CO)	0	5619	5401	Binghamton	75	7297	6825	Lubbock	0	3525								
Tucson	0	1860		Dodge City	0	5243	5084	Buffalo	43	6515	6965	Palestine (CO)	0	1726	2068							
Winslow	7	4708		Goodland	0	6445	5690	New York (CO)	10	4681	5280	Port Arthur (CO)	0	1010	1336							
Yuma	0	1046	1038	Topeka (CO)	0	5234	5101	La Guardia Field	9	4558		Port Arthur	0	1190								
ARKANSAS																						
				Topeka	0	5378		Oswego (CO)	70	6656	7186	San Angelo	0	1971								
Ft. Smith	0	3239	3212	Wichita	0	4813	4656	Rochester	45	6565	6757	San Antonio	0	1209	1445							
Little Rock	0	2940	2998	KENTUCKY											Victoria	0	1504					
Texarkana	0	2333		Lexington	0	4515	4762	Syracuse	42	6589	6879	Waco	0	1752								
CALIFORNIA															Wichita Falls	0	2704					
Bakersfield	4	2270	2163	Louisville (CO)	0	4184	4403	Asheville (CO)	0	3825	4041	UTAH										
Beaumont (CO)	61	3250		Louisville	0	4318		Asheville	1	4035		Midford	38	6772								
Bishop	25	4686	4346	Pikeville (CO)	0	3710		Charlotte	0	2971	3178	Salt Lake City (CO)	27	5830	5542							
Blue Canyon	326	6500		LOUISIANA											Salt Lake City	41	6312	6079				
Burbank	38	1955		Baton Rouge	0	1296	1508	Greensboro	0	3616	3856	VERMONT										
Eureka (CO)	335	5008	4758	Lake Charles	0	1119		Hatteras	0	2166	2516	Burlington	47	7528	7895							
Fresno	9	2651	2410	New Orleans (CO)	0	926	1224	Raleigh (CO)	0	2904	3289	VIRGINIA										
Los Angeles (CO)	17	1471	1502	New Orleans	0	1003		Raleigh	0	3171		Cape Henry	0	3007	3503							
Los Angeles	58	1784		Int. Airport, Moisant	0	1052		Wilmington	0	2169	2399	Lynchburg	0	4007	4007							
Mt. Shasta (CO)	266	6174		Shreveport	0	1945	2132	Winston-Salem	0	3483		Norfolk (CO)	0	2873	3364							
Oakland	143	3104	3087	MAINE											Norfolk	0	3174					
Red Bluff	29	2895	2653	Caribou	138	9514		NORTH DAKOTA											Richmond (CO)	0	3528	3874
Sacramento (CO)	33	2722	2680	Eastport (CO)	206	7631	8391	Devils Lake (CO)	76	10222	10133	Richmond	0	3718								
Sacramento	39	2912		Greenville (CO)	122	9165	9439	Fargo	49	9985	9331	Roanoke	0	3996	4134							
Sandberg (CO)	222	5027		Portland	47	7324	7377	Grand Forks	73	10079	9871	WASHINGTON										
San Diego	30	1430	1682	MARYLAND											Ellensburg	162	7155					
San Francisco (CO)	245	3578	3174	Baltimore (CO)	1	3977	4451	Akron	33	6284	6215	Kelso	213	5420								
San Francisco	209	3509	3397	Baltimore	2	4439		Cincinnati (CO)	0	4305	4941	North Head (CO)	335	5659	5174							
San Jose	72	2566		Frederick	4	4662		Cincinnati	0	4921		Olympia	248	5747								
Santa Catalina	205	2807		MASSACHUSETTS											Port Angeles	351	6059					
Santa Maria	209	3075		Boston	4	5427	5936	Cleveland (CO)	19	5629	6144	Seattle (CO)	139	4562	4499							
COLORADO															Columbus	7	5394	5472	Seattle	246	5503	
Alamosa	80	8679		Milton	36	6284		Cleveland	13	5839		Spokane	139	7029	6373							
Colorado Springs	12	6525		Nantucket	69	5477	5869	Columbus	7	5394	5472	Stampede Pass (CO)	552	9608								
Denver	0	6091	5814	Pittsfield	71	7479		Dayton	2	5514	5484	Tacoma (CO)	215	5098	5039							
Grand Junction	4	6051	5625	MICHIGAN											Tatoosh Island (CO)	399	6174	5912				
Pueblo	0	5583	5548	Alpena (CO)	132	7981	8243	Sandusky (CO)	4	5652	6095	Walla Walla (CO)	63	4984	4928							
CONNECTICUT															Toledo	7	6175	6290	Yakima	109	6381	5640
Bridgeport	13	5272		Detroit	14	6277	6618	Youngstown	41	6340		WEST VIRGINIA										
Hartford	7	5759	6096	Escanaba (CO)	117	8484	8752	Oklaoma City (CO)	0	3548	3664	Charleston	1	4192								
New Haven	13	5485	5873	Grand Rapids (CO)	31	6445	6702	Oklaoma City	0	3617		Elkins	25	5656	5790							
DELAWARE															Tulsa	0	3721		Huntington	0	3794	
Wilmington	4	4661		Grand Rapids	31	6907		Baker (CO)	215	7497	7197	Parkersburg (CO)	1	4542	4928							
DIST. OF COLUMBIA															Muskegon	60	7065		Petersburg	6	4800	
Washington (CO)	0	3966	4514	Marquette (CO)	132	8587	8747	Burns (CO)	222	8030		WISCONSIN										
Washington	0	3960		Muskegon	60	7065		Eugene	172	4820		Green Bay	64	8297	7931							
FLORIDA															Sault Ste. Marie	204	9303	9291	La Crosse (CO)	26	7467	7421
Apalachicola	0	1079	1214	Ypsilanti	15	6388		Meacham	362	8113		La Crosse	26	7750								
Daytona Beach	0	683		MINNESOTA											Madison (CO)	26	7314	7407				
Fort Myers	0	272	277	Duluth (CO)	181	9821	9676	Medford	129	4917	4662	Madison	35	7525								
Jacksonville (CO)	0	926	1132	Duluth	147	9999		Pendleton	89	5454		Milwaukee (CO)	60	7038	7144							
Jacksonville	0	1078		International Falls	115	10586		Portland (CO)	122	4398	4355	Milwaukee	55	7265								
Key West (CO)	0	17	46	Minneapolis	21	8188	7966	Portland	144	4819		WYOMING										
Key West	0	31		Rochester	32	8385		Roseburg (CO)	159	4222	4318	Casper	50	7711								
Melbourne	0	374		St. Cloud	45	9230	8881	Salem	168	5012		Cheyenne	40	7691	7545							
Miami (CO)	0	145	182	St. Paul	20	8030	7965	Sexton Summit (CO)	398	6688		Lander	67	8089	8258							
Int. Airport, Hialeah	0	107		<b>MISSISSIPPI</b>				Troutdale	158	4955		Rock Springs (CO)	94	8320								
Miami Beach	0	57		Jackson	0	1953	2166	<b>PENNSYLVANIA</b>				Rock Springs	103	8819								
Orlando	0	545		Meridian	0	2045	2213	Allentown	19	4758		Sheridan	55	8026								
Pensacola (CO)	0	1210	1423	Vicksburg (CO)	0	1784	2054	Erie (CO)	31	5848	6321	ALASKA										
Tallahassee	0	1138		<b>MISSOURI</b>				Harrisburg	12	5128	5402	Anchorage	386	11534								
Tampa	0	434	550	Columbia	0	5110	5034	Park Place (CO)	59	6793		Annette Island	419	7568								
West Palm Beach	0	156		Kansas City	0	5057	4978	Philadelphia (CO)	7	4282	4739	Barrow	996	19607	20040							
GEORGIA															Philadelphia	7	4468		Bethel	440	13445	12902
Albany	0	1485	1651	St. Joseph	0	5634	5331	Pittsburgh (CO)	3	4850	5339	Cordova	503	10344								
Atlanta (CO)	0	2709	2969	St. Louis (CO)	0	4568	4575	Pittsburgh	9	5302	5658	Fairbanks	194	14403	14270							
Atlanta	0	2667		St. Louis	0	4767		Reading (CO)	10	4745	5178	Galena	233	15576								
Athens	0	2775		Springfield	0	4712	4568	Scranton (CO)	26	5871	6187	Gambell	870	14672								
Augusta	0	2205	2274	<b>MONTANA</b>				Williamsport	15	5929	6051	Juneau	376	9431								
Columbus	0	2092		Billings	49	7522		<b>RHODE ISLAND</b>				Kotzebue	682	16548								
Macon	0	1896	2318	Butte	293	10406		Block Island	26	5219	5862	McGrath	308	14715								
Rome	0	3026		Glasgow (CO)	53	9516		Providence (CO)	7	5256	5919	Nome	546	14537	14249							
Savannah	0	1548	1620	Great Falls	129	8213		Providence	18	5578		Northway	279	16257								
Valdosta	0	1296		Havre (CO)	89	9043	8438	<b>SOUTH CAROLINA</b>				St. Paul Island	762	10591								
IDAHO															Charleston (CO)	0	1569	1840	Umiat	765	22119	
Boise	87	6277	5678	Helena	160	8922	7930	Columbia (CO)	0	2129	2459	Yakutat	505	9900								
Lewiston	89	5663		Kalispell	216	8489	8032	Columbia	0	2327												
Pocatello	104	7608	6763	Wiles City	35	8818		Florence	0	2235												
ILLINOIS															Greenville	0	2880	3039				
Cairo (CO)	0	3682	3942	Missoula	206	8204	7638	Spartanburg	0	2937												
Chicago (CO)	17	6024	6291	NEBRASKA																		
Chicago	10	6287		Grand Island	1	6724		SOUTH DAKOTA														



# MONTHLY AND SEASONAL HEATING DEGREE DAYS

1951 - 1952

Table 3A

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Long-Term Mean July-June
ALABAMA														
Birmingham	0	0	2	86	513	484	422	423	388	167	20	0	2505	2532
Mobile (CO)	0	0	0	31	338	264	211	218	203	62	0	0	1327	1537
Mobile	0	0	0	31	353	288	225	248	214	69	5	0	1433	5
Montgomery (CO)	0	0	0	31	427	365	304	314	254	96	9	0	1800	2052
Montgomery	0	0	0	35	453	392	320	335	285	116	11	0	1947	2071
ARIZONA														
Flagstaff	4	91	200	563	922	1181	1208	1066	1122	650	388	207	7602	7182
Payson (CO)	0	18	5	210	559	806	793	684	776	349	64	0		
Phoenix (CO)	0	0	0	8	140	378	399	281	288	46	0	0	1540	1433
Phoenix	0	0	0	11	186	394	414	306	295	43	0	0	1649	
Prescott	0	16	4	281	620	894	888	755	824	381	81	11	4755	
Tucson	0	0	0	18	187	413	404	386	383	69	0	0	1860	
Winslow	0	4	2	249	696	930	871	785	761	326	77	7	4708	
Yuma	0	0	0	3	71	286	342	156	186	2	0	0	1046	1038
ARKANSAS														
Ft. Smith	0	0	8	115	588	712	576	505	487	219	29	0	3239	3212
Little Rock	0	0	6	120	571	625	529	432	434	198	25	0	2940	2998
Texarkana	0	0	0	73	455	513	397	362	367	155	11	0	2333	
CALIFORNIA														
Bakersfield	0	0	0	52	239	558	549	354	396	109	9	4	2270	2163
Beaumont (CO)	0	6	8	114	330	617	658	485	600	307	64	61	3250	
Bishop	0	1	10	261	606	934	1066	680	750	297	56	25	4686	4346
Blue Canyon	33	54	55	433	656	985	1096	870	1032	599	361	326	6500	
Burbank	0	2	0	44	182	406	451	270	376	164	22	38	1955	
Eureka (CO)	279	286	289	303	385	565	613	514	609	455	375	335	5008	4758
Fresno	0	0	0	89	278	620	606	432	454	139	24	9	2651	2410
Los Angeles (CO)	0	1	0	14	113	324	371	182	310	129	10	17	1471	1502
Los Angeles	3	1	0	26	134	334	385	232	338	195	78	58	1784	
Mt. Shasta (CO)	24	40	62	471	729	1035	1083	830	850	464	317	266	6174	
Oakland	113	60	65	123	289	511	568	406	429	232	165	143	3104	3087
Red Bluff	0	0	2	78	354	615	711	463	461	136	46	29	2895	2653
Sacramento (CO)	2	1	3	82	305	587	620	444	432	161	52	33	2722	2680
Sacramento	1	0	3	100	336	620	644	467	447	177	78	39	2912	
Sandberg (CO)	1	23	17	276	519	858	921	687	868	460	175	222	5027	
San Diego	0	0	1	17	105	285	321	206	280	153	32	30	1430	1682
San Francisco (CO)	266	232	172	123	255	460	519	365	420	282	239	245	3578	3174
San Francisco	189	108	102	153	322	504	549	394	431	295	253	209	3509	3397
San Jose	27	4	26	108	252	484	525	375	397	191	105	72	2566	
Santa Catalina	61	43	53	87	213	421	468	336	479	307	134	205	2807	
Santa Maria	118	86	79	110	263	480	500	330	446	235	219	209	3075	
COLORADO														
Alamosa	10	65	304	680	1171	1426	1462	1212	1161	691	417	80	8679	
Colorado Springs	16	28	183	528	862	1086	955	939	1016	583	317	12	6525	
Denver	17	12	139	513	799	1108	927	865	962	496	253	0	6091	5814
Grand Junction	0	0	36	383	860	1293	1171	968	878	349	109	4	6051	5625
Pueblo	0	6	115	462	841	1034	879	812	840	421	173	0	5583	5548
CONNECTICUT														
Bridgeport	0	1	63	274	706	894	972	906	832	398	213	13	5272	
Hartford	0	5	101	331	775	1005	1053	960	854	412	256	7	5759	6096
New Haven	0	3	72	308	734	915	989	911	852	432	256	13	5485	5873
DELAWARE														
Wilmington	0	2	45	214	699	842	862	789	751	309	140	8	4661	
DISTRICT OF COLUMBIA														
Washington (CO)	0	0	22	152	634	746	750	679	656	258	69	0	3966	4514
Washington	0	0	22	140	621	742	747	686	667	259	76	0	3960	
FLORIDA														
Apalachicola	0	0	0	4	261	217	217	189	135	55	1	0	1079	1214
Daytona Beach	0	0	0	2	131	86	149	172	80	58	5	0	683	
Fort Myers	0	0	0	0	67	34	71	78	11	11	0	0	272	277
Jacksonville (CO)	0	0	0	8	231	169	190	183	104	41	0	0	926	1132
Jacksonville	0	0	0	7	246	199	216	225	129	55	1	0	1078	
Key West (CO)	0	0	0	0	35	0	6	4	0	0	0	0	17	46
Key West	0	0	0	0	10	1	11	9	0	0	0	0	31	
Melbourne	0	0	0	0	78	35	96	108	30	27	0	0	374	
Miami (CO)	0	0	0	0	32	10	43	37	10	13	0	0	145	182
Miami Int. Airport	0	0	0	0	26	13	36	24	5	3	0	0	107	
Mialeah	0	0	0	0	17	2	21	16	2	0	0	0	57	
Miami Beach	0	0	0	0	127	78	128	134	47	31	0	0	545	
Orlando	0	0	0	14	315	250	192	204	177	58	0	0	1210	1423
Tallahassee	0	0	0	8	277	225	196	233	131	65	3	0	1138	
Tampa	0	0	0	0	103	60	106	109	33	23	0	0	434	550
West Palm Beach	0	0	0	0	32	20	40	47	9	8	0	0	156	
GEORGIA														
Albany	0	0	0	19	348	319	243	286	180	87	3	0	1485	1651
Atlanta (CO)	0	0	3	83	545	548	479	459	415	153	24	0	2709	2969
Atlanta	0	0	3	73	518	549	479	473	411	143	18	0	2667	
Athens	0	0	3	77	554	569	473	495	417	161	26	0	2775	
Augusta	0	0	0	37	446	470	371	414	321	135	11	0	2205	2274
Columbus	0	0	0	39	439	419	353	395	301	133	13	0	2092	
Macon	0	0	0	32	398	413	319	360	259	104	11	0	1896	2318
Rome	0	0	3	94	582	615	548	526	452	175	31	0	3026	
Savannah	0	0	0	20	345	303	273	322	200	80	5	0	1548	1620
Valdosta	0	0	0	16	302	255	236	253	143	86	5	0	1296	
IDAHO														
Boise	1	23	88	482	784	1156	1182	995	868	376	235	87	6277	5678
Lewiston	10	27	77	475	767	1084	1111	792	710	340	181	89	5663	
Pocatello	12	31	147	586	934	1301	1368	1239	1111	520	255	104	7608	6763
ILLINOIS														
Cairo (CO)	0	0	24	155	682	743	710	576	520	226	46	0	3682	3942
Chicago (CO)	0	2	91	319	901	1106	1105	904	904	424	251	17	6024	6291
Chicago	0	4	114	342	957	1196	1163	942	917	419	223	10	6287	
Chicago University	5	6	106	334	924	1141	1126	924	920	456	279	18	6239	
Joliet	3	10	152	367	1090	1268	1207	961	943	439	234	13	6597	
Moline	3	4	130	350	965	1283	1232	967	970	399	195	6	6504	
Peoria	1	2	119	334	944	1198	1163	919	891	390	184	4	6149	5987
Springfield (CO)	0	0	71	260	849	1064	1028	802	784	352	129	0	5339	5414
Springfield	0	0	101	291	894	1112	1071	847	818	392	150	1	5677	
INDIANA														
Evansville	1	0	55	226	772	854	822	700	635	302	87	0	4454	4415
Ft. Wayne	0	16	140	328	931	1159	1067	951	877	452	233	5	6159	6230
Indianapolis (CO)	0	0	69	226	827	995	943	817	734	359	144	0	5114	5458
Indianapolis	0	1	112	281	875	1060	981	854	774	390	163	0	5491	
South Bend	2	24	157	366	981	1195	1149	975	921	488	284	21	6563	
Terre Haute	0	0	108	274	871	1036	967	807	746	367	141	0	5317	



# MONTHLY AND SEASONAL HEATING DEGREE DAYS

1951 - 1952

Table 3A-Continued

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Long-Term July-June
IOWA														
Burlington	1	1	125	333	920	1258	1185	917	922	395	174	3	6234	5813
Charles City (CO)	14	20	215	460	1104	1446	1516	1052	1084	490	254	21	7676	7624
Davenport (CO)	0	0	105	327	938	1237	1193	927	936	375	167	5	6210	6224
Des Moines	3	4	147	403	979	1372	1345	942	975	448	188	1	6807	6417
Dubuque	17	19	206	459	1095	1409	1418	1087	1087	482	249	19	7490	6910
Keokuk (CO)	2	4	112	277	809	1157	1069	835	859	398	132	0	5654	5663
Sioux City	17	5	195	457	1031	1462	1454	982	1083	470	186	1	7343	6982
KANSAS														
Concordia (CO)	0	0	113	345	799	1139	1049	775	885	415	99	0	5619	5401
Dodge City	0	4	96	359	785	1013	893	758	819	420	105	0	5243	5084
Goodland	24	6	154	476	861	1212	1040	929	1010	505	228	0	6445	5690
Topeka (CO)	0	0	84	308	773	1085	989	746	803	353	93	0	5234	5101
Topeka	0	0	91	315	802	1094	1018	761	820	367	110	0	5378	5663
Wichita	0	0	59	293	758	964	879	704	747	338	71	0	4813	4656
KENTUCKY														
Lexington	0	0	54	229	789	841	816	754	627	323	82	0	4515	4762
Louisville (CO)	0	0	38	184	722	808	798	697	588	274	75	0	4184	4103
Louisville	0	0	45	224	765	824	792	699	603	292	74	0	4318	4318
Pikeville (CO)	0	0	17	171	677	707	696	637	532	233	40	0	3710	3710
LOUISIANA														
Baton Rouge	0	0	0	32	326	267	192	218	192	65	4	0	1296	1508
Lake Charles	0	0	0	17	269	261	154	201	173	44	0	0	1119	1119
New Orleans (CO)	0	0	0	7	260	199	145	166	125	24	0	0	926	1224
New Orleans	0	0	0	4	282	209	160	184	137	27	0	0	1003	1003
New Orleans Int'l.	0	0	0	11	271	222	145	191	165	47	0	0	1052	1052
Shreveport	0	0	0	39	400	432	327	310	308	122	7	0	1945	2132
MAINE														
Caribou	77	108	314	644	1093	1570	1681	1391	1205	818	475	138	9514	9514
Eastport (CO)	77	97	200	485	802	1155	1264	1122	1021	690	512	206	7631	8391
Greenville (CO)	70	115	302	603	1077	1486	1572	1361	1174	761	522	122	9165	9439
Portland	10	31	195	491	870	1219	1280	1123	1023	629	406	47	7324	7377
MARYLAND														
Baltimore (CO)	0	0	23	148	624	734	755	681	667	267	77	1	3977	4451
Baltimore	0	0	39	196	698	820	814	739	715	301	115	2	4439	4439
Frederick	0	3	43	216	712	901	847	777	728	318	113	1	4662	4662
MASSACHUSETTS														
Boston	0	3	65	309	665	923	997	935	856	432	238	4	5427	5936
Milton (Blue Hill Obs.)	4	22	114	395	782	1021	1088	1034	962	504	322	36	6284	6284
Nantucket	0	4	60	291	603	840	929	909	886	549	335	69	5477	5869
Pittsfield	21	71	241	477	979	1177	1243	1168	1058	552	421	71	7479	7479
MICHIGAN														
Alpena (CO)	44	85	265	513	1053	1243	1271	1170	1163	606	436	132	7981	8243
Detroit	1	14	116	332	902	1126	1098	1031	945	463	235	14	6277	6618
Escanaba (CO)	48	116	284	586	1107	1369	1417	1202	1202	645	391	117	8484	8752
Grand Rapids (CO)	0	13	144	371	960	1126	1138	1004	965	468	235	21	6445	6702
Grand Rapids	8	32	188	409	1011	1197	1194	1056	994	517	270	31	6907	7142
Lansing	5	37	190	408	1022	1215	1185	1081	1025	531	274	36	7009	7142
Marquette (CO)	80	156	319	597	1092	1349	1398	1199	1184	612	469	132	8587	8747
Muskegon	14	46	205	439	987	1152	1173	1068	1039	551	331	60	7065	7065
Sault Ste. Marie	120	162	363	615	1142	1448	1465	1308	1279	679	518	204	9303	9291
Ypsilanti	1	14	137	342	938	1167	1125	1024	935	461	229	15	6388	6388
MINNESOTA														
Duluth (CO)	93	197	400	707	1273	1636	1746	1266	1286	605	431	181	9821	9676
Duluth	98	180	415	706	1302	1675	1780	1316	1352	617	421	147	9999	9999
International Falls	81	168	428	757	1379	1847	1990	1400	1395	606	420	115	10586	10586
Minneapolis	5	19	242	506	1176	1500	1629	1192	1199	475	224	21	8188	7966
Rochester	12	38	244	505	1200	1513	1590	1179	1205	549	318	32	8385	8385
St. Cloud	16	53	318	609	1266	1649	1791	1319	1321	559	284	45	9230	8881
St. Paul	1	23	235	505	1161	1482	1596	1161	1178	456	212	20	8030	7965
MISSISSIPPI														
Jackson	0	0	0	57	426	394	331	307	298	132	11	0	1953	2166
Meridian	0	0	0	67	451	406	334	314	324	130	16	0	2045	2213
Vicksburg (CO)	0	0	0	51	388	369	317	277	269	106	7	0	1784	2054
MISSOURI														
Columbia	4	0	80	256	799	1047	953	772	746	343	110	0	5110	5034
Kansas City	1	0	68	279	752	1056	958	737	781	334	91	0	5057	4978
St. Joseph	2	0	94	328	834	1177	1077	799	745	370	118	0	5634	5331
St. Louis (CO)	0	0	42	211	761	924	856	701	670	318	85	0	4568	4575
St. Louis	1	0	56	234	779	965	896	724	693	331	88	0	4767	4767
Springfield	0	0	69	254	804	930	854	699	663	343	96	0	4712	4568
MONTANA														
Billings	54	45	312	620	889	1413	1398	1043	1021	412	266	49	7522	7522
Butte	133	230	480	831	1143	1591	1571	1441	1443	734	516	293	10406	10406
Glasgow (CO)	26	62	343	682	1128	1770	1871	1466	1452	434	229	53	9516	9516
Great Falls	61	136	368	709	878	1538	1141	1083	1136	425	309	129	8213	8213
Hailey (CO)	28	90	319	727	1014	1699	1769	1253	1376	413	236	89	9043	8438
Helena	56	112	388	730	1023	1563	1620	1216	1161	525	368	160	8922	7930
Kalispell	77	139	383	734	996	1513	1426	1070	1043	516	346	216	8489	8032
Miles City	45	20	335	643	1041	1692	1815	1265	1317	392	218	35	8818	8818
Missoula	67	83	306	663	1022	1408	1474	1112	1015	500	348	206	8204	7638
NEBRASKA														
Grand Island	19	1	188	455	898	1340	1219	988	1016	494	185	1	6724	6724
Lincoln (CO)	3	1	120	372	863	1307	1227	816	952	438	126	0	6255	5980
Lincoln	7	2	148	410	908	1330	1269	888	917	457	145	0	6541	6541
Norfolk	21	5	200	471	989	1453	1179	991	1097	494	195	1	7296	7296
North Platte	37	9	198	520	902	1348	1143	960	1051	525	224	0	6917	6375
Omaha	5	1	128	387	909	1385	1320	886	972	426	138	0	6557	6238
Scottsbluff	27	16	212	525	878	1292	1153	988	1053	490	258	0	6872	6872
Valentine (CO)	53	19	249	544	940	1512	1387	1038	1169	493	251	9	7664	7218
NEVADA														
Elio	21	50	175	645	914	1406	1407	1266	1184	532	342	185	8127	8127
Ely	4	48	214	672	991	1439	1463	1300	1312	654	394	224	8715	8715
Las Vegas	0	0	0	86	413	700	711	475	447	60	2	0	2894	2894
Reno	15	37	92	558	742	1062	1198	843	955	509	290	187	6488	5689
Tonopah	0	3	27	440	777	1163	1189	873	1030	500	261	106	6369	6369
Winnemucca	5	42	129	593	794	1193	1155	913	1000	464	319	196	6803	6339
NEW HAMPSHIRE														
Concord	9	47	198	465	922	1218	1284	1163	1021	543	364	36	7298	7377
Mt. Washington	501	572	720	951	1429	1733	1720	1673	1626	1187	1080	606	13801	13801
NEW JERSEY														
Atlantic City (CO)	0	1	29	157	590	784	803	754	740	369	159	1	4340	5015
Newark	0	0	48	239	680	855	898	842	774	336	160	10	4842	5500



# MONTHLY AND SEASONAL HEATING DEGREE DAYS

1951 - 1952

Table 3A-Continued

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Long-Term Mean July-June
NEW JERSEY (Cont'd.)														
Trenton (CO)	0	1	45	232	685	828	879	818	767	318	154	12	4739	5105
NEW MEXICO														
Albuquerque	0	0	3	200	680	888	800	738	693	264	58	6	4330	4420
Clayton	0	9	94	364	772	943	850	790	819	433	189	3	5266	4949
Raton	3	13	151	473	943	1060	973	942	919	554	303	15	6349	6965
Roswell	0	0	17	112	573	711	592	574	512	166	54	0	3311	3578
NEW YORK														
Albany	1	17	172	418	931	1169	1196	1094	1000	436	320	21	6775	6686
Bear Mountain (CO)	5	24	151	394	868	1053	1125	1038	960	473	313	44	6448	6448
Binghamton	20	64	194	434	980	1166	1231	1138	1070	525	400	75	7297	6825
Buffalo	6	22	158	348	915	1062	1122	1036	968	496	339	43	6515	6965
New York (CO)	0	44	212	640	1242	1368	1420	1265	1334	471	287	44	5839	5280
La Guardia Field	0	0	38	191	621	798	870	821	750	316	147	9	4558	4558
Oswego (CO)	3	37	162	355	862	1046	1155	1050	984	531	401	70	6656	7186
Rochester	7	28	150	365	915	1078	1149	1050	976	478	324	45	6565	6757
Schenectady	0	15	160	401	898	1134	1177	1057	974	434	276	16	6542	6542
Syracuse	3	38	145	377	888	1068	1182	1081	978	460	327	42	6589	6879
NORTH CAROLINA														
Asheville (CO)	0	0	19	195	707	736	634	613	582	278	61	0	3825	4041
Asheville	0	0	19	195	707	758	675	650	617	321	92	1	4035	4035
Charlotte	0	0	9	91	513	632	530	556	440	178	22	0	2971	3178
Greensboro	0	0	20	134	629	749	633	646	534	230	41	0	3616	3856
Hatteras	0	0	0	16	302	395	469	429	440	112	3	0	2166	2516
Raleigh (CO)	0	0	9	86	532	562	517	528	468	173	29	0	2904	3289
Raleigh	0	0	15	110	565	600	560	584	498	204	35	0	3171	3171
Wilmington	0	0	1	43	390	419	399	444	344	121	8	0	2169	2399
Winston-Salem	0	0	18	131	617	723	612	610	514	214	44	0	3483	3483
NORTH DAKOTA														
Bismarck	33	67	310	680	1247	1832	1961	1373	1472	512	297	49	9833	8981
Devils Lake (CO)	46	89	371	768	1373	1874	1987	1383	1405	513	337	76	10222	10133
Fargo	35	56	302	665	1517	1798	1967	1401	1379	525	301	49	9995	9331
Grand Forks	35	64	329	717	1372	1853	2028	1420	1326	521	341	73	10079	9871
Pembina	43	84	368	670	1368	1829	1988	1265	1334	471	287	44	9751	9751
Williston (CO)	38	81	351	695	1214	1833	1841	1356	1453	429	294	66	9651	9309
OHIO														
Akron	9	29	155	334	928	1106	1050	976	915	484	265	33	6284	6215
Cincinnati (CO)	0	0	33	191	732	846	780	728	620	289	86	0	4305	4941
Cincinnati	0	0	72	247	816	936	872	811	695	354	121	0	4921	4921
Cleveland (CO)	1	12	90	250	805	996	975	925	857	464	235	19	5629	6144
Cleveland	0	14	107	265	874	1065	1012	947	870	450	222	13	5839	5839
Columbus	0	8	94	297	843	1024	918	878	771	398	156	7	5394	5472
Dayton	0	1	96	280	864	1043	971	900	785	409	163	2	5514	5484
Sandusky (CO)	0	3	89	255	829	1041	986	946	861	441	197	4	5652	6095
Toledo	0	21	123	325	902	1150	1053	995	897	476	226	7	6175	6290
Youngstown	7	31	154	329	917	1098	1057	990	935	484	297	41	6340	6340
OKLAHOMA														
Oklahoma City (CO)	3	0	23	171	631	720	624	544	539	253	40	0	3548	3664
Oklahoma City	2	0	16	172	647	734	637	558	550	260	41	0	3617	3617
Tulsa	0	0	16	172	639	776	684	567	561	269	37	0	3721	3721
OREGON														
Baker (CO)	35	80	179	597	872	1257	1282	1147	967	502	364	215	7497	7197
Baker	41	93	245	653	915	1347	1381	1217	1017	534	365	222	8030	8030
Burns (CO)	15	59	152	618	934	1258	1358	1152	1031	495	341	214	7627	7627
Eugene	14	44	89	363	553	831	789	636	628	414	287	172	4820	4820
Meacham	79	124	213	669	923	1252	1242	1044	1059	633	513	362	8113	8113
Medford	7	19	24	383	608	898	926	713	692	318	200	129	4917	4662
Pendleton	8	18	69	426	725	1063	1109	751	677	335	184	89	5454	5454
Portland (CO)	18	24	47	290	529	790	842	642	582	314	198	122	4398	4355
Portland	15	43	90	343	570	845	901	667	600	371	230	144	4819	4819
Roseburg (CO)	10	18	25	316	484	759	731	578	597	330	215	159	4222	4318
Salem	20	52	96	362	585	844	816	703	640	431	295	168	5012	5012
Sexton Summit (CO)	69	83	103	515	691	983	1084	845	948	537	432	398	6688	6688
Troutdale	30	42	81	358	579	828	911	685	644	387	252	158	4955	4955
PENNSYLVANIA														
Allentown	0	13	81	322	834	107	1016	895	858	398	215	19	4758	4758
Curwensville	38	75	222	431	1026	1179	1171	1080	1018	465	308	31	5848	6321
Erie (CO)	0	17	102	272	817	955	1013	961	907	465	308	31	5848	6321
Harrisburg	0	5	55	274	782	954	938	822	791	339	156	12	5128	5402
Park Place (CO)	14	42	155	402	959	1107	1151	1064	1010	511	319	59	6793	6793
Philadelphia (CO)	0	0	24	170	633	763	817	752	715	291	110	7	4282	4739
Philadelphia	0	0	36	184	668	808	852	770	728	293	122	7	4468	4468
Pittsburgh (CO)	1	3	70	221	758	881	858	809	751	337	158	3	4850	5339
Pittsburgh	3	12	84	254	824	937	925	866	801	396	191	9	5302	5658
Reading (CO)	0	0	50	228	721	873	886	783	751	313	130	10	4745	5178
Scranton (CO)	1	23	114	335	839	1003	1057	949	881	399	244	26	5871	6187
Williamsport	0	13	94	345	882	1074	1081	941	860	401	223	15	5929	6051
RHODE ISLAND														
Block Island	0	1	53	264	615	800	891	902	847	505	315	26	5219	5862
Providence (CO)	0	2	71	277	683	883	950	915	832	416	220	7	5256	5919
Providence	0	6	89	325	704	936	991	938	864	450	257	18	5578	5578
SOUTH CAROLINA														
Charleston (CO)	0	0	0	17	311	314	291	342	215	77	2	0	1569	1840
Charleston	0	0	0	30	367	338	309	375	238	103	10	0	1770	1770
Columbia (CO)	0	0	4	36	431	454	377	404	302	110	11	0	2129	2459
Columbia	0	0	2	47	460	492	390	444	345	133	14	0	2327	2327
Florence	0	0	2	55	437	445	384	447	328	128	9	0	2235	2235
Greenville	0	0	3	75	558	613	499	526	430	149	27	0	2880	3039
Spartanburg	0	0	5	93	567	625	505	533	431	154	24	0	2937	2937
SOUTH DAKOTA														
Huron	17	28	260	580	1097	1671	1720	1229	1322	492	242	12	8670	7940
Pierre	27	15	236	572	1039	1701	1726	1223	1331	492	209	16	8587	7283
Rapid City	52	19	274	563	951	1471	1311	1102	1208	447	278	27	7703	7251
Sioux Falls	22	18	266	546	1119	1577	1625	1156	1215	484	250	11	8289	8289
TENNESSEE														
Bristol	0	0	37	202	728	754	675	636	595	272	62	0	3961	3961
Chattanooga	0	0	3	111	621	645	546	551	454	171	33	0	3135	3195
Knoxville	0	0	9	140	662	669	571	560	487	193	43	0	3334	3624
Memphis	0	0	10	134	582	594	541	474	454	215	20	0	3024	3118
Nashville	0	0	17	165	662	655	636	565	514	234	47	0	3495	3607
TEXAS														
Abiene	0	0	10	77	443	508	410	356	342	114	26	0	2286	2599
Amarillo	0	0	52	231	660	803	720	643	613	316	99	0	4137	4215
Austin	0	0	0	70	303	360	234	218	211	0	0	0	1410	1679
Big Spring	0	0	6	73	425	515	421	404	337	92	30	0	2303	2637
Brownsville	0	0	0	0	91	93	82	70	20	5	0	0	361	628



# MONTHLY AND SEASONAL HEATING DEGREE DAYS

1951 - 1952

Table 3A-Continued

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Long-Term Mean July-June
<b>TEXAS (Cont'd.)</b>														
Corpus Christi	0	0	0	0	160	173	128	113	53	15	0	0	642	967
Dallas	0	0	0	56	397	479	349	313	314	121	14	0	2043	2354
Del Rio	0	0	0	0	242	325	218	176	141	18	0	0	1120	1500
El Paso	0	0	0	21	424	569	482	499	437	94	14	0	2540	2532
Ft. Worth	0	0	0	52	399	476	360	311	317	110	10	0	2035	2353
Galveston (CO)	0	0	0	0	193	196	117	159	126	30	0	0	821	1170
Galveston	0	0	0	0	200	207	117	160	133	31	0	0	848	
Houston (CO)	0	0	0	1	245	239	157	176	147	40	0	0	1005	
Houston	0	0	0	3	261	251	163	195	161	50	0	0	1084	1331
Laredo	0	0	0	0	148	161	114	91	51	7	0	0	572	
Lubbock	0	0	29	166	590	701	632	593	526	223	65	0	3525	
Palestine (CO)	0	0	0	33	350	400	277	276	279	105	6	0	1726	2068
Port Arthur (CO)	0	0	0	4	257	241	138	177	156	37	0	0	1010	1336
Port Arthur	0	0	0	15	285	267	161	211	195	56	0	0	1190	
San Angelo	0	0	5	46	385	413	354	338	293	88	19	0	1971	
San Antonio	0	0	0	2	272	319	212	197	157	50	0	0	1209	1445
Victoria	0	0	0	3	224	219	164	769	87	28	0	0	1504	
Waco	0	0	0	35	362	432	290	266	269	92	6	0	1752	
Wichita Falls	0	0	11	94	515	596	487	426	397	157	21	0	2704	
<b>UTAH</b>														
Milford	0	1	67	496	907	1303	1252	1057	947	492	212	38	6772	
Salt Lake City (CO)	0	0	40	396	786	1104	1078	981	922	362	134	27	5830	5542
Salt Lake City	0	1	64	443	832	1199	1170	1052	971	388	151	41	6312	6079
<b>VERMONT</b>														
Burlington	6	47	187	459	961	1234	1361	1175	1082	567	402	47	7528	7895
<b>VIRGINIA</b>														
Cape Henry (CO)	0	0	5	47	438	549	567	599	541	215	46	0	3007	3503
Lynchburg	0	0	33	179	682	789	701	678	602	278	65	0	4007	4007
Norfolk (CO)	0	0	8	63	457	520	559	565	504	175	22	0	2873	3364
Norfolk	0	0	13	95	474	582	609	615	541	206	39	0	3174	
Richmond (CO)	0	17	138	585	676	657	630	551	223	51	0	0	3528	3874
Richmond	0	0	22	161	608	710	692	655	579	233	58	0	3718	
Rosnoke	0	0	38	192	709	746	703	662	609	273	64	0	3996	4134
<b>WASHINGTON</b>														
Ellensburg	27	46	148	563	886	1289	1458	1011	816	480	269	162	7155	
Kelso	69	89	128	410	619	852	884	684	683	466	323	213	5420	
North Head (CO)	202	218	273	354	506	726	768	673	670	517	417	335	5659	5174
Olympia	61	99	177	445	654	885	897	723	699	515	344	248	5747	
Port Angeles	247	271	315	462	567	766	799	664	666	530	421	351	6059	
Seattle (CO)	25	55	110	346	513	771	775	602	589	379	258	139	4562	4499
Seattle	17	105	185	433	609	877	880	697	629	490	335	246	5503	
Spokane	23	59	163	591	874	1319	1281	1002	867	455	256	139	7029	6373
Stampede Pass (CO)	250	304	324	791	1052	1293	1367	1102	1122	807	644	552	9608	
Stevenson (CO)	36	44	79	372	618	896	1043	726	677					
Tacoma (CO)	38	69	148	401	571	819	805	651	647	425	309	215	5098	5039
Tatoush Island (CO)	286	329	358	409	518	752	777	641	683	565	457	399	6174	5912
Walla Walla (CO)	1	15	39	372	691	1044	1051	692	606	274	136	63	4984	4928
Yakima	15	37	125	515	809	1194	1360	876	740	404	197	109	6381	5640
<b>WEST VIRGINIA</b>														
Charleston	0	3	59	206	710	756	722	695	635	304	101	1	4192	
Elkins	14	42	148	341	896	940	894	854	817	461	224	25	5656	5790
Huntington	0	0	39	174	691	747	652	644	572	230	45	0	3794	
Parkersburg (CO)	0	3	68	248	733	834	792	766	677	319	101	1	4542	4928
Petersburg	4	7	71	244	774	896	817	766	727	357	131	6	4800	
<b>WISCONSIN</b>														
Green Bay	30	76	257	533	1181	1376	1492	1233	1183	537	335	64	8297	7931
La Crosse (CO)	5	20	198	427	1100	1436	1441	1062	1067	453	232	26	7467	7421
La Crosse	3	21	208	445	1150	1423	1504	1135	1108	474	253	26	7750	
Madison (CO)	6	20	201	454	1056	1346	1346	1074	1091	459	235	26	7314	7407
Madison	13	36	201	472	1095	1379	1374	1091	1094	476	259	35	7525	
Milwaukee (CO)	11	22	150	411	996	1242	1248	1019	1047	500	332	60	7038	7144
Milwaukee	11	33	181	440	1051	1270	1293	1043	1043	512	333	55	7265	
<b>WYOMING</b>														
Casper	47	21	283	635	936	1376	1208	1107	1173	530	345	50	7711	
Cheyenne	65	57	306	650	940	1251	1127	1046	1141	660	408	40	7691	7545
Lander	51	26	279	661	1022	1389	1348	1176	1176	534	360	67	8089	8258
Rock Springs (CO)	19	41	230	644	1083	1351	1418	1261	1196	619	364	94	8320	
Rock Springs	35	56	267	704	1117	1412	1459	1317	1281	656	412	103	8819	
Sheridan	60	25	336	646	959	1450	1389	1137	1193	478	298	55	8026	
<b>ALASKA</b>														
Anchorage	170	276	527	1028	1264	1677	1900	1340	1305	953	708	386	11534	
Annette Island	211	205	332	641	735	998	1046	839	883	731	528	419	7568	
Barrow	642	649	969	1308	1608	2253	2499	2524	2520	2101	1538	996	19607	20040
Bethel	361	371	588	1057	1300	1675	1943	1726	1630	1404	950	440	13445	12902
Cordova	279	371	473	880	1003	1373	1595	1107	1070	943	747	503	10344	
Fairbanks	153	215	538	1318	1597	2248	2621	1960	1734	1104	721	194	14403	14270
Galena	239	341	634	1328	1582	2375	2607	2062	1882	1368	925	233	15576	
Gambell	631	627	802	1001	1168	1417	1764	1891	1877	1486	1138	870	14672	
Juneau	146	289	426	832	1014	1315	1565	991	1032	821	624	376	9431	
Kotzebue	412	474	698	1262	1549	2157	2321	2015	1951	1736	1291	682	16548	
McGrath	220	297	616	1251	1444	2225	2598	1912	1785	1188	871	308	14715	
Nome	489	545	657	1090	1289	1746	1963	1792	1756	1549	1115	546	14537	14249
Northway	114	341	620	1494	1954	2486	3027	2168	1832	1154	788	279	16257	
St. Paul Island	553	492	608	796	910	1035	1027	1158	1186	912	762	292	10591	
Umiat	1702	476	919	1675	1835	2554	2841	2949	2750	2131	1522	765	22119	
Wales	1519	628	758	1100	1182	1731	2099							
Yakutat	301	333	429	774	966	1289	1477	1037	1097	926	766	505	9900	

Data from airport unless otherwise specified. CO indicates data from city office.



## SEVERE STORMS

Table 4

JUNE 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
New Hampshire and Vermont	1-2	All day, 1st-a.m., 2d			3		Considerable	Light	Rain and flooding	North-central Vermont most seriously affected; 2 to 4 inches of rain on saturated soils and high streams. Score of towns partially evacuated; 10 major highways closed; 15 bridges washed out; utilities and communications disrupted; many families removed from flood-menaced dwellings. Less serious floodings in other sections of New England.
Tuttle and vicinity, Grady County, Okla.	1	12:30-12:50 a.m.	*4	6			\$10,000	\$60,000	Hail	Hail, 2½ inches in diameter, damaged majority of composition roofs in Tuttle. Overall loss to crops average 10 to 15 percent.
Meridian community (northwest of), Roger Mills County, Okla.	1	12:49 a.m.	Narrow	Short	0	0	4,500		Tornado	Farmstead damaged considerably. Observers reported tornado as fast moving funnel, whipping like wagging of a dog's tail. Moved northeastward.
Reydon (vicinity of), Roger Mills County, Okla.	1	1-2 a.m.	Wide				200	15,000	Hail	Hail small. Wheat and rye crops damaged.
Ralston (14 miles west of), Osage County, Okla.	1	5-5:25 a.m.	440	1				10,000	Hail and wind	20 to 50 percent hail damage to crops in small area. Hail found in ditches as late as 5 p.m.
Sweetwater (west of), Roger Mills County, Okla.	1	6:30 a.m.			0	0	0	0	Tornado	Funnel observed, but apparently did not strike ground.
Hay Springs (south and east of), Nebr.	1	3-4 p.m.		4				500	Hail	
Jacksonville, Ill.	1	4 p.m.					1,000		Electrical	Damage due to lightning strike on generating unit.
Washington, D.C. and vicinity	1	6:30-7:30 p.m.					1,500		Electrical, wind, and hail	5 houses struck by lightning. 3 automobiles struck by falling trees. Hail caused little damage.
Nassau County, N.Y.	1						See remarks		Rain	Heavy rain, which storm sewers could not carry, caused flooding up to 6-foot depths in some streets. Stores and business places flooded; electric and telephone services disrupted.
Nogales, Ariz.	2	1:25-1:45 a.m.	1,760	6		1	200,000	2,000	Hail	Severe hailstorm with stones reaching 1½ inches in diameter and a few up to 3 inches. Extensive damage to roofs, windows, neon lights, and automobile bodies (dents). Damage by hail about \$192,000; damage by rain about \$10,000.
Gilbert, Ariz.	2		1,760	1				500	do	Hailstorm area about 1 mile square. Newly-sprouted cotton damaged.
Greene County, N.C.	2	4 p.m.						15,000	do	
Buck Grove, Grundy County, Iowa	2	6:30-7 p.m.	100	3	1	2	200,000		Tornado	Funnel cloud moved southeastward and then eastward. It completely destroyed 4 farmsteads, 1 schoolhouse, 1 machine shed, and damaged other buildings. Schoolhouse being used as polling place, but officials and voters fled as storm approached; ballot box not recovered. Child killed and 2 injured. Farm animals suffered heavily, with estimated dead of 6 cows, 50 pigs, numerous turkeys, and chickens.
Blair (near), Wis.	2	7 p.m.				1	12,000	3,000	Wind, hail, and electrical	Winds of tornadic force demolished large barn and uprooted trees. Heavy hail damaged roofs and crops. Lightning killed 5 cows.
Springfield, Ill.	2	7:45 p.m.					2,750		Electrical and wind	Damage largely due to lightning-set fires; minor wind damage.
West Salem (near), Wis.	2	3 p.m.		15				10,000	Hail and rain	Hailstones ¾ to 2½ inches in diameter. Damage to fruit trees and crops. Some erosion damage.
Albuquerque, N. Mex.	2						750,000		Rain	Flash floods on arroyos damaged streets, buildings, and highways.
Dwyer, Wyo.	3	Afternoon			1		Light		Flash flood	Man killed when flash flood swept through saw mill camp.

See footnotes at end of page.



## SEVERE STORMS

Table 4—Continued

JUNE 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Alexander and Burke Counties, N.C.	3	5 p.m.						\$5,000	Hail	1½ square mile area damaged.
Cherokee (south and east of), Goltry (southeast of), Helena (northwest of), and Jet (south- west of), Alfalfa County, Okla.	4	2-5 p.m.	*3½				\$1,450	250,000	do	Hail small, but struck nearly ripened bumper wheat crop.
Grant Coun- ty, Okla.	4	2:30-4 p.m.	*8	8	0	0	Minor	40,000	Hail and tornado	In area from Pond Creek northward through Jefferson, 25 to 35 percent of wheat was hailed. Tornado funnel sighted east of Pond Creek, but did not touch ground; no damage by tornado.
Blaine Coun- ty, Okla.	4	3:30-5 p.m.			0	0	0	22,000	do	Scattered hail damage throughout County. Hail generally ½ inch in diameter, but some 1 to 4 inches in diameter reported. A small tornado observed 5 miles south of Okeene. It dipped into a couple of wheat fields, with about \$2,000 damage. Tornado moved northeastward.
Edwards County to Rush-Barton County line, Kans.	4	3:30-4 p.m.						See remarks	Hail	Damage to wheat up to 50 or 60 percent reported on several farms in south-central part of Edwards County in hailstorm which moved northeastward. Hail fell a little later along Rush-Barton County line, apparently from same squall line, causing light to moderate wheat damage on a few farms.
Saline Coun- ty, Kans.	4	Afternoon	Nar- row					See remarks	do	In a narrow strip just west of Salina, hail damaged wheat on a few farms to extent of 50 percent or more.
Walnut Ridge, Ark.	4	3:35 p.m.			0	0	See remarks		Tornado	Funnel formed in cotton field near campus of Southern Baptist College, 5 miles north of Walnut Ridge. It moved eastward, destroying an empty farm house and damaging some outbuildings. Monetary loss slight, but no estimate available.
Chattanooga (south of), Tillman County, Okla.	4	4-5 p.m.	*3 to 4	10				45,000	Hail	Storm moved eastward.
Marion Coun- ty, Kans.	4	4-4:30 p.m.	*1½ to 3	15			5,000	30,000	Wind, hail, and pos- sibly tornado	Severe hailstorm in north-south strip east of Florence near Marion-Chase County boundary damaged wheat, oats, corn, and gardens up to 100 percent in center of strip. Strong wind just southeast of hail strip in area of about 6 square miles destroyed buildings and trees in manner to indicate tornado, but no funnel sighted. Property damage by wind; crop damage by hail.
Loyal (east of), King- fisher Coun- ty, Okla.	4	4:45-6:30 p.m.						1,500	Hail	Scattered hail damage to wheat over area extending from Loyal eastward 8 to 10 miles.
Pasquotank, Hertford, Washington, Lenoir, Hoke, and Clay Coun- ties, N.C.	4	5 p.m.						4,000	do	22 square mile area damaged.
Lancaster County (southern portion), Pa.	4	Evening			1				Electri- cal	A boy and 2 mules he was driving killed by lightning.
Demascus, Md.	4	7-9 p.m.					3,000		do	American Legion Hall struck by lightning and damaged by ensuing fire.
Britton, Oklahoma County, Okla.	4	7:30-8:05 p.m.	1,760				12,000		Hail	Hail damage to roofs in Britton. Hail ranged in size from about 1 to 1-7/8 inches in diameter. Clouds extremely turbulent. For awhile it appeared as if a tornado funnel cloud was about to develop over Lake Hefner area, northwest of Oklahoma City.
Nassau Coun- ty, N.Y.	4	8:30- 11:30 p.m.					See remarks		Rain and electri- cal	2 Nassau County homes struck by lightning, and about 1,000 homes without electric service because power lines damaged. Streets and homes in many communities flooded.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JUNE 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Elk County, Kans.	4	Night					\$2,000		Electri- cal	Lightning produced fire and destroyed barn with hay in southern part of County.
Sherman, Grayson County, Tex.	5	12:30 p.m.			0	1	650		Tornado, and hail	Only touched ground in a few places near Sherman. Very light hail accompanied storm. Principal damage to farm buildings.
Camps Pass, Mont.	5	3:30 p.m.	*12	25				Some	Hail	Alfalfa damaged.
Jerome (8 miles east of), Idaho	5	Afternoon			1				Electri- cal	A boy and his horse killed by lightning.
Mecklenburg and Union Counties, N.C.	5	P.m.						\$65,000	Hail	20 square mile area damaged.
Cumberland County, N.C.	5	P.m.			1	1			Electri- cal	Farmer of Hope Mills community killed, and his son slightly injured, as they stood in their yard.
Robeson and Pitt Coun- ties, N.C.	5	P.m.					50,000	500,000	Electri- cal and hail	Over 1,000 acres of tobacco destroyed or damaged by hail. Warehouse and other minor buildings burned by lightning.
Chester, S.C.	5	5:45 p.m.					10,000		Electri- cal	Fire from lightning severely damaged 24-unit apart- ment.
Maple and Good Hope sections, Horry Coun- ty, S.C.	5	Afternoon						7,500	Wind and hail	Damage mostly to tobacco.
Beaufort, Craven, Ber- tie, Greene, and Lenoir Counties, N.C.	6	5 p.m.					5,000	10,000	Hail	20 square mile area damaged.
Martinsdale, Mont.	6	6 p.m.	*2	4				Some	do	Damage mostly to alfalfa and gardens. A few windows broken. Hailstones about 1 inch in diameter.
Crow Agency, Mont.	6	6:30 p.m.	1,760	5				30,000	do	Hailstones 1 inch in diameter.
Indian Hills (15 miles southwest of Denver), Colo.	6	6:30 p.m.			1	2			Electri- cal	Man killed instantly, and 2 boys slightly injured when struck by lightning during severe thunder- storm.
Lake Ontar- io, N.Y.	6	Night					See remarks		Wind	On eastern shore of Lake Ontario, high wind blew down trees and utility lines, unroofed and other- wise damaged buildings. Wind and high water under- mined lake-front construction.
Lander, Wyo.	7	3-6 a.m.					2,000	Light	Flood	Damage confined to streets, yards, and basements of homes and business buildings.
Fall River, Shannon, Bennett, and Meade Coun- ties, S.Dak.	7	3-7 p.m.					10,000	50,000	Hail	Hail 1 to 3 inches in diameter fell at various loca- tions, namely, Edgemont, Hot Springs (7 miles west of), Manderson, Martin, and Elm Springs.
Iron Range and Duluth, Minn.	7	6:30-9:50 p.m.	*5	60		3	70,000	5,000	Wind, hail, and rain	Thunderstorms moved southeastward, with high wind, hail, and heavy rain. Roof of Virginia Power Plant blown away; buildings, automobiles, hangers, and a number of aeroplanes on ground damaged; 1 aeroplane completely wrecked; television aerials, power and communication lines downed; hundreds of trees up- rooted or branches broken off; plate-glass windows blown in; 3 indirect personal injuries. Moderate to heavy hail. Some hailstones size of golf balls reported to have fallen at Virginia Airport, caus- ing considerable damage to a number of aeroplanes on ground. Hundreds of residential windows, wind- shields and windows of automobiles broken; also, hoods and tops of automobiles punctured or dented; much damage to greenhouses and roofs and sidings of houses. Damage to property by wind, \$50,000; by hail, \$20,000; to crops by hail, \$5,000.
Bergland, Mich.	7	Night					6,000		Electri- cal	Home burned.
Roy, Mont.	7							24,000	Hail	Damage of 50 percent to 500 acres of hay.

See footnotes at end of table.



# SEVERE STORMS

JUNE 1952

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Grant and Pope Coun- ties, Minn.	8	12:15 a.m.	*5				\$10,000		Wind	Thunderstorm moved southeastward, with high wind, light hail, and heavy rain. Silos on 2 farms destroyed; barns, outbuildings, and houses damaged; roof of grandstand at Fair Grounds torn off; trees uprooted.
Atchison County, Kans.	8	4:30 p.m.					4,000		Electri- cal	Farm home and most of furnishings in central part of Atchison County destroyed by fire, after being struck by lightning.
Chambers- burg, Pa.	8	Afternoon				1			Heat	Man collapsed on street from sunstroke.
Erie, Pa.	8-9	5 p.m., 8th- 5 a.m., 9th			3	2	50,000	\$10,000	Electri- cal, winds, and hail	Series of 4 thunderstorms. 3 persons drowned when boat capsized by wind and waves 5 miles off shore. Barn destroyed by fire started by lightning. House burned from short circuit. Hail up to 1 inch in diameter damaged truck patches and corn, destroying some completely. Presque Isle Coast Guard Unit reported wind of 70 m.p.h. Many cars on peninsula had paint damaged by wind-blown sand. Trees and wires down in many sections, with portions of roofs, chimneys, and buildings damaged by high winds. Heaviest damage from Girard to Presque Isle, and in Wattsburg area.
Clark, Kiowa, Edwards, and Stafford Counties, Kans.	8	6 p.m.					Slight	300,000	Hail, wind, and rain	Damaging hail fell in several strips in counties named at approximately same time:—(1) From west of Minneola in Clark County southward for 16 miles in a 2- to 3-mile-wide strip, wheat losses ranged up to 100 percent and windows broken. (2) In northeastern Clark County, more than 5,000 acres of wheat damaged in 3 x 6 mile strip. (3) In southwestern Kiowa County, at least 6 farms suffered damage in a narrow hail strip about 2 miles long. (4) In southern Edwards County, hail with wind and heavy rain knocked down wheat in narrow strip 3 to 4 miles long. (5) In western Stafford County, hail up to golf ball size damaged wheat in 1 x 15 mile strip; on 1 farm hail was 6 inches deep.
Shawnee, Douglas, and Frank- lin Coun- ties, Kans.	8	7:30-9:30 p.m.			0	0	150,000	0	Wind, tornado, rain, and hail	Severe wind, reaching 70 m.p.h., struck first at Forbes Air Force Base and caused extensive damage to planes and hangars. In Lone Star Lake area south of Lawrence, trees blown over, 1 falling on automobile. In Ottawa area, wind, accompanied by heavy rain and light hail, knocked out telephone lines. Funnel cloud moving northeastward sighted aloft about 2 miles north of Ottawa.
Illinois, northern portion	8	Evening			7		101,000	0	Wind and electri- cal	Heavy thunderstorms resulted in consequential wind damage. 3 persons killed in East Moline by downed power lines; 2 burned to death in lightning-strike fire at Ottawa; and drowning deaths occurred at Lakes Fox and Bang when pleasure crafts capsized.
Escanaba, Mich.	8	Evening					See remarks		Wind	Telephone poles and lines blown down.
Washington, D.C. and vicinity	9	12:30- 1:30 p.m.				4	5,000		Electri- cal, wind, and rain	6 houses struck by lightning. Numerous trees and wires blown down. 4 persons injured in traffic accidents in which heavy rain was a factor.
Anna, Ill.	9	1:30 p.m.					30,000	120,000	Thunder- storm, wind, and hail	Thunderstorm, accompanied by high winds and hail, caused considerable damage to fruit trees, particularly apple. Small buildings blown down, and falling limbs and trees disrupted communication lines. Numerous television antennae blown down.
Metropolitan New York City and Long Is- land, N.Y.	9	2 p.m.			3	2	2,000,000		Wind	Trees broken and blown down. Airplanes on fields and at factories damaged.
Aiken, S.C.	9	Afternoon					2,000		do	A 270-foot radio tower fell.
Charlotte Hall, Md.	9	P.m.					See remarks		do	Winds blew down trees and power lines; ripped off roof of barn.
Union and Essex Coun- ties, N.J.	9	P.m.					3,000	500	Wind, hail, and electrical	Trees and wires blown down. Lightning caused several minor residential fires. Crop damage from hail.
Prospect, Prince Ed- ward Coun- ty, Va.	9	Afternoon					5,000		Electri- cal	House struck by lightning; resulting fire destroyed it and contents.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JUNE 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Richmond, Va.	9	4 p.m.					\$2,500		Wind	Tree, toppled by wind, damaged small house.
Dinwiddie County, Va.	9	4:30 p.m.					8,000	\$2,500	Wind and electrical	Entire County affected. Small grain blown down. Roof of new garage and store in Wilson lifted from building. At DeWitt farmer stunned and a 1,200-lb. bull killed by lightning.
Petersburg, Va.	9	5 p.m.					See remarks		Wind	Many trees blown down; electricity to 1 section of city knocked out.
Faulkton, Faulk County, S. Dak.	9	5:30-6:30 p.m.					Small	Small	do	Cars and sheds moved at a location 9 miles east of Faulkton.
Pitt and Cumberland Counties, N.C.	9	6-8 p.m.						100,000	Hail	20 square mile area damaged.
Buncombe County, N.C.	9	8:20 p.m.	1,200	5			10,000		Rain and wind	Damage to trees, houses, and pavement in and around Asheville.
Collins- ville, Ill.	10	12:30 a.m.					55,000	1,000	Thunder- storm and wind	High winds, accompanying a thunderstorm, caused property damage, chiefly at Fairmount Race Track where roof of grandstand blown away.
Spencer and vicinity, Ind.	10	1:15 a.m.	1,760				500		Hail	Hail about $\frac{1}{2}$ to $\frac{3}{4}$ inch in diameter.
Spencer, W. Va.	10	6:30-8:30 a.m.	100 to 150				50,000		Electrical, wind, and rain	Near-tornadic winds uprooted trees and damaged power lines and poles; 3 residences and 1 garage damaged by falling trees; heavy rain soaked interiors of buildings.
Frederick County, Va.	10	10:15 a.m.	400	1			10,000		Wind	3 houses and barns damaged and 25 trees blown down in Middletown area.
Clark, Wyo.	10	1-6 p.m.					Moderate	Light	do	Damage confined to trees, buildings, and automobiles.
Montana, northeast- ern portion	10	Afternoon	*200	250	1	5	99,150	555,000	Wind, electrical, and hail	Practically all damage from wind. Hail damage about 1 percent of total in some areas. Girl killed near Malta when hay rack overturned. Near Glasgow 5 boys injured when lightning struck tree. Glasgow Weather Bureau Office reported peak wind speed of 47 m.p.h. with gusts estimated at 60 m.p.h. Unofficial reports of gusts to 80 m.p.h. from aeroplane air speed indicator. Considerable damage to power lines at Glasgow and Sidney.
Greater Boston and most of Middlesex County, Mass.	10	3:15-5:30 p.m., and 7:45- 9:45 p.m.				12	Numerous small losses	500,000 by hail	Hail, electrical, and wind	Hail varied in diameter from $\frac{3}{8}$ inch at Airport to 1 inch in outlying suburbs; crop loss estimated by Market Gardeners Association. Personal injuries in auto accidents on hail-slicked streets. Lightning and ensuing fires caused numerous, but relatively small, losses to homes.
Addison County, Vt.	10								Hail	Productive apple region; loss measured in thousands of dollars.
Gordons- ville, Va.	10	4:50 p.m.	300	2			50,000		Wind	Drive-in theatre screen blown to other side of highway; rectory heavily damaged by 2 huge trees; garage crushed; hundreds of trees blown down and thrown over power and telephone lines. Community without lights or power from 4:50 to 10:40 p.m., and without telephone service throughout night.
Beach (vi- cinity of), Golden Valley County, N. Dak.	10	5 p.m.	300	8	0	0	15,000		Tornado and winds	Intermittent damage appears to have occurred in a circular area southeast, northeast, north, and northwest of Beach. Virtually complete destruction reported in path 300 yards wide and 8 miles long, beginning about 11 miles north of Beach and extending northward and a little westward. However, it missed nearly all farms in area. Twister-like winds, however, struck in other areas around Beach, destroying at least 1 barn, tearing roofs off others, damaging buildings, and killing 2 cows.
Bertie, Chow- an, and Richmond Counties, N.C.	10	P.m.						9,000	Hail	9 square mile area damaged.
Cumberland and Ocean Counties, N.J.	10	P.m.			1		3,000		Electrical, wind, and hail	Men struck and killed by lightning near Tuckerton. Trees and wires blown down. Several large signs demolished.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JUNE 1951

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Baltimore and other central sections of Maryland	10	P.m.	*2				\$50,000		Electrical and wind	Power and telephone lines knocked down. Television co-axial cable broken. Trees uprooted; roofs damaged. 2 horses struck by lightning and 50 horses at horse farm scratched as roof ripped off. Wind gusts reached 80 m.p.h. at Friendship Airport.
Cherokee County, Ala.	10	P.m.					See remarks		Electrical	Lightning struck a rural electrification line cutting off all power in the little river valley and Broom Town sections.
Mathews County, Va.	10	7:20 p.m.	*1½	8			10,000		Wind	Principally in Westville and Chesapeake Magisterial Districts. Trees uprooted; a 30-inch cottonwood fell across house and another crushed a workshop nearby; windows broken and chimneys toppled in other sections.
Dickinson and 11 miles west, Stark County, N. Dak.	10	Evening			0	0	30,000		Wind (tornadoic), and hail	Roof to addition of packing plant in Dickinson ripped off, and cattle sheds destroyed. A 2 x 4 plank driven through a 12-inch thick brick wall by force of wind. 11 miles west of Dickinson a group of farms severely damaged, with some barns and machine-sheds destroyed. On 1 farm a plank driven through side of house; also, 80 chickens, a calf and a pig killed. Hail size of golf balls struck Dickinson, but damage very slight. Apparently tornado-like winds did not follow definite track.
Morristown, Hemblen County, Tenn.	10-11	11 p.m., 10th- 1 a.m., 11th					See remarks		Winds, hail, and rain	3 homes damaged. 8 barns and farm buildings destroyed or damaged. Heavy rains flooded portion of city and washed some farms badly.
Detroit, Mich.	10				1		See remarks		Wind	Winds of 56 m.p.h. in gusts broke windows and felled trees and power lines.
Atlanta, Ga.	11	4-6 p.m.					3,000		Electrical	During a moderately severe thunderstorm, bolts of lightning struck and damaged 4 buildings and burned out transmission line, leaving large areas without electric services for a time.
Ellijay, Ga.	11	Late after- noon					200,000		do	Lightning struck Ellijay High School building without causing appreciable damage, but an unnoticed "live" wire led to fire several hours later (early morning of June 12) that destroyed building and its contents.
Wisconsin, southern portion	11	Night				2	100,000		Electrical and winds	Considerable lightning damage:—Many power failures; 1,400 telephones temporarily out of service; 7 homes in Milwaukee and 5 homes in Racine damaged by lightning. Trees uprooted by high winds.
South Bend, Ind.	11-12	11 p.m.- 5 a.m.					10,000		Electrical and rain	Lightning set fire to several buildings. Heavy rain washed out or damaged some sections of highway.
Spencer and vicinity, Ind.	12	2:20 a.m.					2,000	\$8,000	Hail	Hail as large as small hens' eggs destroyed 400 panes of glass in greenhouse and knocked apples from trees.
Shelbyville, Ind.	12	4:30 a.m.					10,000		Rain and wind	Heavy rain overtaxed sewers, flooding warehouse, some basements, etc. Wind blew tree limbs down on electrical lines.
Lexington, Ky.	12	A.m.			1				Electrical	Person killed by lightning while crossing ramp at Blue Grass Field.
Nora, Ind.	12	P.m.					7,000		Wind and rain	Store merchandise damaged by water when portion of roof damaged by wind.
Minnesota, northern and east- central counties	12-13	P.m.-a.m.		220			115,000		Wind, electrical, hail, and rain	Thunderstorm moved southeastward, with high wind, heavy rain, hail, and severe lightning. Roofs of buildings damaged; some silos wrecked; windows broken; many trees uprooted or branches broken off; television antennae, power and communication lines down. Unusually severe lightning over wide area. Many homes, buildings, barns, trees, power and communication lines struck, some of which were partially or entirely destroyed by fire. A number of head of livestock perished. Damage to property by wind, \$15,000; by lightning, \$100,000.
Williston, S.C.	12	7-8 p.m.					500,000		Tornado (possible)	No funnel cloud observed, although severity and type of damage indicate tornado. About 100 trailers destroyed, trees and telephone poles uprooted, and communications interrupted.
Salley, S.C.	12	7:30 p.m.					5,000		Wind, and electrical	TV aeriels toppled; communications interrupted. Fire from lightning burned a barn.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JUNE 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Illinois, northeast- ern portion	12						\$135,000		Thunder- storm and wind	Wave damage to pleasure craft and harbor installa- tions at Chicago during severe thunderstorms, es- timated at \$20,000. Airport near Belvidere sus- tained losses in excess of \$100,000 when winds destroyed 6 aircraft and a hangar, damaging 16 more aircraft and another hangar.
McMinnville, Warren Coun- ty, Tenn.	13	4-10 a.m.					See remarks		Thunder- storm	4.60 inches of rain caused flash flood and damaged 1 house.
Carthage, Smith Coun- ty, Tenn.	13	6-9:15 a.m.					See remarks	See remarks	do	6.76 inches of rain in 3 hours flooded highway and damaged crops and gardens.
Baker, Du- val, and Lafayette Counties, Fla.	13						0	See remarks	Hail	Damage to tobacco in Lafayette County; no damage reported elsewhere.
St. Peters- burg, Fla.	13	1 p.m.			0	0	See remarks	\$ 0	Water- spout and tornado	Waterspout formed over Tampa Bay and moved ashore into St. Petersburg as a tornado that unroofed 1 home and deposited major portion of this roof on another home 2 blocks away. Storm dissipated shortly after coming ashore.
Wisconsin, most of State	13	Day			2		°300,000	°	Wind, hail, and electric- cal	Severe squall line moved southeastward over State, causing high wind, heavy rain, and lightning. Dam- age most severe in Chippewa County where 11 large barns demolished. Considerable disruption of tele- phone and power services in State. Scattered hail damage to crops. About 2,500 telephones in south- eastern Wisconsin temporarily inoperative, due to wet cables from heavy rain.
Attica, Ind.	13	P.m.					8,000		Electrical	Lightning destroyed house.
South Bend, Ind.	13	7:30 p.m.					6,000		Rain	Damage to highways caused by heavy rain.
Stickney, Aurora Coun- ty, S. Dak.	13	9 p.m.					See remarks	See remarks	Wind and hail	Trees, windows, and crops damaged in area southwest, north, and northeast of Stickney.
Spirit Lake, Iowa	13	Night					See remarks		Wind	Waves raised by strong winds damaged docks and boats on south shore of Spirit Lake. Widespread minor damage elsewhere in State.
Earling, Iowa	14	Afternoon			1				Electrical	Farmer killed in open field by lightning.
Lakefield and vicinity, Minn.	13-14			30			11,500	18,000	Wind, hail, electric- cal, and rain	Thunderstorms moved northeastward, with high wind, heavy rain, and hail. Several barns moved from their foundations or otherwise damaged; a few out- buildings blown over; some trees uprooted or branch- es broken off. Light to moderate hail. Some fields of soybeans reported to be total loss. Damage to property by wind, \$5,000; by hail, \$5,000; to crops by hail, \$18,000. Several cows killed by light- ning; loss, \$1,500.
Lyons, Ind.	14	6:45 p.m.	*3	3			1,000	4,500	Wind and hail	Most damage to trees and gardens, but some damage also to wheat and corn. Hail damage, \$1,000; wind, \$4,500.
Cheyenne and vicinity, Roger Mills County, Okla.	15	12:50 a.m.	Nar- row	Short	0	0	1,000		Tornado and hail	Tornado moved across cemetery, destroying telephone lines, upending tombstones, and destroying fences and rose bushes. Other damage to lumber yard, where fence destroyed and thrown ½ block south. Hail damage to 3 farms west of Cheyenne.
Eddy County, (southeast- ern por- tion), N. Dak.	15	2:15 a.m.	*4	20			8,000		Winds	High winds, accompanying thunderstorm, destroyed barn and a few small buildings, and damaged some machinery, windmills, and a few buildings. Some hail accompanied storm, with no damage.
Heston (6 miles south of), Wells County, N. Dak.	15	Early morning			0	1	10,000		Tornado	A tornado struck 2 farms in a northeastward line about 3/4 mile apart. 1 farm completely wrecked, except for house which was twisted but still stood. Barn blown 1,000 feet from its foundation; largest piece remaining measured 8 x 10 feet. Machine-shed caromed off garage and house and then landed in garden. The other farm lost sheep barn, chicken coop, and 150 chickens; also, granary moved off foundation. Woman received cuts from flying glass.
Bryant, Ham- lin County, S. Dak.	15	4 a.m.						See remarks	Hail	Much damage to crops 15 miles north of Bryant at Vienna.

See footnotes at end of table.



# SEVERE STORMS

Table 4—Continued

JUNE 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Brusett, Mont.	15	7 a.m.							Electrical	Lightning-set fire burned 1,000 to 1,500 acres of brush and timber.
O'Neill (near), Nebr.	15	Evening			0	0	\$7,000	\$ 0	Tornado	Drive-in theatre screen destroyed.
Lane County, Kans.	15	Evening					35,000	See remarks	Electrical	At Healy, fire started by lightning completely destroyed large machine shed with 400 bushels of maize and several large pieces of machinery.
Roscoe, Ed- munds County, S. Dak.	15	7 p.m.	880	$\frac{1}{2}$			See remarks		Wind	Buildings scattered.
Alexandria, Hanson County, S. Dak.	15	8:45 p.m.	140	2			See remarks		do	Barns and small buildings damaged in 2 mile strip west of Alexandria.
Jefferson County, Ky.	15						5,000		do	Knocked down trees and caused electric and telephone wires to be broken, interrupting services.
Ironwood, Mich.	16						See remarks		Rain	Heavy rains flooded basements and washed out roads.
Grand Rapids, Mich.	17	Morning					45,000		Electrical	Warehouse burned.
Marquette, Mich.	17						See remarks		Wind	Winds blew down power lines.
Washington, D.C. and vicinity	17	1:30-3 p.m.				2	500		Electrical	Several houses struck by lightning, with minor damage. 2 persons stunned by lightning.
Fulton, N.Y.	17	1:50 p.m.					See remarks		Wind, rain, and hail	Wind and hail broke branches and stripped foliage from trees; utility services disrupted, and cellars flooded. Damage estimated at several thousands of dollars.
Richmond, Va.	17	2:30 p.m.					Minor		Wind and electrical	Transformer struck by lightning; several short circuits caused by limbs blown across wires.
Patrick County (south- western part), Va.	17	3 p.m.	1,760				1,000	10,000	Wind	Heavy damage to tobacco, small grains, hay crops, and power lines.
Camp Pick- ett, Va.	17	Afternoon				2			Electrical	2 soldiers, operating telephones at firing range, stunned.
Huntington and vicinity, W. Va.	17	Afternoon				1	See remarks		do	Woman struck by lightning while taking washing off clothesline; reported to be in serious condition. 2 buildings struck by lightning and slightly damaged.
Brilliant, Ohio	17	Late afternoon					Several thousands		Rain and wind	Trees blown down on homes and on 1 car; streets blocked; roofs damaged; utility lines cut off.
Warren, Pas- saic and Mercer Counties, N.J.	17	P.m.					1,000		Electrical and wind	Damage to trees and public utilities.
Irvine, Ky.	17	6 p.m.			1	1	See remarks		do	Fatality and injury caused by being struck by lightning. Very little property damage, although some trees broken.
New England, various locations	17						500,000		Rain, hail, and wind	In morning, Greater Boston, southeastern Massachusetts, and Cape Cod struck by violent thunderstorms; \$25,000 losses at Provincetown, considerable property damage other sections. In afternoon, thunderstorms in Vermont and especially Berkshire region of Massachusetts, with telephone and power services interrupted; 50 trees blown down in Pittsfield; North Adams-Williamstown area pounded by rain, hail, and strong winds.
Republic County, Kans.	18	Early a.m.					2,000		Electrical	Fire started by lightning destroyed barn in central Republic County.
Beatrice (north of), Nebr.	18	6:30 a.m.	440 to 880	5			300	4,500	Hail and wind	
Scott, Ark.	18	2:30 p.m.			0	0	See remarks		Tornado	Storm moved east-northeastward. Damage confined to narrow swath through some small timber, and destruction of 2 small barns.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JUNE 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Lincoln and Saline Counties, Kans.	18	4-5 p.m.			0	3	\$40,000	\$330,000	Hail, wind, rain, tornado, and electrical	At least 3 areas suffered damage to wheat from hail, wind, and heavy rain: A 1 x 6 mile strip in south-central Lincoln County, a lesser area in northwestern Lincoln County, and a 3 x 6 mile strip from northwest of Salina to west edge of city, with 100 percent damage to all fields. In Salina, wind turned over 7 trailers, injuring 3 women, and tore roofs from buildings at Camp Phillips, Smoky Hill Air Force Base, Municipal Airport, and within city. Lightning struck high school music room, setting fire which destroyed many instruments. Tornado, sighted about 4 miles southwest of Lincoln, did not reach ground, but damage to farm buildings northwest of Salina suggested tornadic winds. Property damage by wind, \$30,000; lightning, \$10,000. Crop damage by hail, \$330,000.
Parma, Idaho	18	5:30-6 p.m.						See remarks	Hail and wind	High wind and hailstorm caused some damage to row crops.
Haskell County, Kans.	18	8:30-9:30 p.m.	*6	20				500,000	Hail	Hailstones size of marbles knocked down much wheat in area beginning 6 miles east of Sublette. Hail apparently soft as it did no damage to exposed automobiles.
Long Island, N. Y.	19	1:30 p.m.					See remarks		Wind, electrical, and rain	Wind and lightning interrupted electric service to 4,000 homes. Trees blown down and buildings damaged. Several homes struck by lightning.
Cabool (vicinity of), Mo.	19	3-4:30 p.m.					10,000	2,000	Wind	High winds unroofed several buildings, tore down power and telephone lines, flattened wheat and oats, and blew away shocked small grain.
Fairview (east of), Major County, Okla.	19	4 p.m.					800	See remarks	Wind and hail	Light hail $\frac{1}{2}$ to $\frac{3}{4}$ inch in diameter damaged 135 acres of small cotton. Amount of hail damage to crops unknown. Wind damaged 2 steel grain bins; some roofing on house. Power line poles knocked down.
West Memphis, Ark.	19	4:15 p.m.					25,000		do	Storm moved eastward. Damage to property in southern and eastern parts of town and was principally caused by high wind.
Hunterdon and Burlington Counties, N. J.	19	P.m.					4,000		Wind and electrical	Extensive damage to public utilities.
Westminster, southeastward to northern Baltimore, Md.	19	P.m.		35		3	See remarks		do	Church steeple blown down, crashing through roof of church. Seats blown off ferris wheel, injuring operator. Hundreds of trees uprooted. Chimneys toppled. Communications lines down. Women hit by falling chimney bricks. Girl injured by falling tree limb. Warehouse set on fire at Frizzleburg. Showcase window blown out.
Chambersburg- Harrisburg- Allentown area, Pa.	19	Evening					10,000		Winds	Thunderstorm winds felled trees, limbs, and utility lines in Chambersburg area. Falling trees damaged 4 cars considerably. In Harrisburg winds blew down an enclosed porch and started a power-line fire. At Fredericksburg, roof and entire 2d story of cement block building blown off and 4,000 prize chickens scattered over adjacent fields. Near Allentown, an amphibian plane upset, and a big barn demolished by thunderstorm winds.
Wellington (5 miles south of), Sumner County, Kans.	19	7:10 p.m.	60	3	0	0	10,000		Tornado	A tornado, moving northeastward, completely destroyed barn and new machine shed on 1 farm and did lesser damage on 3 other farms. Funnel plainly seen.
Columbia, S. C.	19	7:30 p.m.				1	50,000		Thunderstorm	Trees, wires, and TV aerials torn down. Power and communications interrupted. Houses unroofed. Many automobiles damaged by falling trees and limbs.
Marshall County (southern portion), W. Va.	19	Evening					See remarks	See remarks	Hail and wind	3 acres of corn beaten to ground and most of 4 acres of wheat destroyed by hail and wind; 1 small vegetable garden ruined and fruit knocked from trees; 10 windows in farm residence broken by hail, and 3 windows and roof of another farm house damaged by hail which was reported as big as quarters.
Pottawatomie County, Kans.	19	Night					500		Electrical	4 cows killed by lightning in northern part of County.
Morrill County (northern portion), Nebr.	19, 20, 24		*3				Slight	806,400	Hail	Loss to winter wheat. Storms moved unknown distance into grazing land.

See footnotes at end of table.



# SEVERE STORMS

Table 4—Continued

JUNE 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Concord, Ga.	20	2 p.m.					\$500	\$5,000	Wind and hail	High winds blew down a number of trees, causing some power lines to be pulled down with small losses. Hail, measuring $\frac{1}{2}$ inch or more in diameter, caused rather severe damages to some peach orchards.
Norfolk, Nebr.	20	2 p.m.					25,000		Electrical	Building and contents burned; fire started by lightning.
Tucson, Ariz.	20	3 p.m.			1	5	2,500		Dust devil	"Dust devil" struck large warehouse under construction. A truck buried under debris. Workmen involved in collapse of structure. Men killed instantly when struck by falling roof truss.
Box Butte County (northwestern portion), Nebr.	20	4-6:30 p.m.	880	12 to 15			Slight	100,000	Hail	Winter wheat damaged.
Brooks County, Ga.	20	Early night			0	0	1,000	50,000	Wind and hail	High winds demolished barn and blew another over; roofs of several buildings partially blown off; a number of trees uprooted, tearing down a few utility lines and wrecking an automobile. Hail of moderate size caused substantial damages to crops over more than 100 acres between Quitman and Pavo Community, some fields being total losses.
Montreal County (southeastern portion), N. Dak.	20				0	0	0	0	Tornado	A tornado cloud observed south of Parshall, apparently in contact with ground. However, no reports of damage received or other evidence of it actually touching the ground.
West Point, Ky.	20						3,000		Hail	Heavy hail damaged 5 light aircraft at West Point Airport.
Jefferson County, Ky.	20						20,000		Electrical, wind, and rain	Lightning started a church fire, caused a home to burn, and knocked out electric and telephone services. Wind blew off several roofs, forced down a small airplane, blew down revival tent, and toppled trees and limbs. Several streets flooded.
Henderson, Ky.	20				1		1,000		Wind	Man injured fatally when pinned beneath tree, blown down by high winds. Some electric power lines downed.
Hardesty (near), Texas County, Okla.	20				1				Electrical	Lightning killed boy driving tractor.
Dickinson County, Kans.	21	3:30 a.m.					10,000	0	do	Lightning set fire to Lutheran Church in southeastern corner of County, burning it to ground.
Highwood, Mont.	21	Noon	*1 $\frac{1}{2}$	10				40,000	Hail	
Fairview (east of), Major County, Okla.	21	3:50-4:30 p.m.	440	$\frac{1}{2}$	0	0	See remarks		Wind, hail, and tornado	Light hail $\frac{3}{8}$ to $\frac{1}{2}$ inch; no damage. Grain bin damaged by wind. Storm moved southeastward.
Franklin County, N.C.	21	P.m.				1	2,000		Electrical	Woman slightly injured, when home near Louisburg damaged by lightning.
Caldwell County, N.C.	21	P.m.					5,000	10,000	Hail and wind	Trees blown down with some damage to homes in east end of Lenoir. Crop damage on nearby farms.
Greencastle, Ind.	21-22	P.m.-a.m.					30,000	10,000	Rain and flash flood	More than 6.50 inches of rain in less than 12 hours overflowed highways and fields, also Municipal Water Purification Reservoir polluting water supply.
Caswell and Chowan Counties, N.C.	21	Late p.m.						7,000	Hail	
Leavenworth and Wyandotte Counties, Kans.	21	7 p.m.	*4 $\frac{1}{2}$	50	0	0	75,000	0	Wind, rain, and tornado	Winds, which registered 53 m.p.h. at Lake Tonganoxie before power failure, blew over trees and caused isolated instances of destruction to buildings, including a filling station and several barns along path between Tonganoxie and Kansas City. Damage at several unaligned locations indicative of tornadic winds. No funnel sighted, but roar or whistling noise noted by several people. Tornadic winds occasionally reached ground. Heavy rain accompanied the wind. Damage by wind, \$50,000; by tornado, \$25,000.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JUNE 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Palmetto, Bedford County, Tenn.	21	7:30-9:30 p.m.					See remarks		Electrical and wind	High winds uprooted some trees and blew limbs from others. 6 sheep and 1 sow killed by lightning.
Hillsboro, Highland County, Ohio	21	Early evening					\$700		Wind and rain	Most damage confined to power facilities, roofs, and television aerials.
Waverly and vicinity, Nebr.	21	Evening						\$600	Wind	Corn crib overturned, 2 houses damaged by large limbs blown from trees.
Baxter, Ky.	21				1				Electrical	Death caused by being struck by lightning.
Danville, Va.	22	1:30 p.m.					75,000		Wind, electrical, and rain	Buildings damaged; porches torn loose; portions of fences at League Park, Ballou Park, and drive-in theatre blown down; fallen trees blocked streets; power lines damaged; department store basement flooded; television antennae and chimneys damaged; minor damage to several houses by lightning.
Pittsburgh, Pa.	22	3-9 p.m.					\$500,000		Electrical and rains	Rains of cloudburst proportions (maximum measured—0.92 inch in 10 minutes at WBO, Pittsburgh) hit Pittsburgh in 3 waves at 3 p.m., 6 p.m., and 8 p.m. Many streets had water, mud, and debris flowing 3 to 6 feet deep. Thousands of homes flooded, autos floated or submerged, walls shattered, gardens washed out, and building equipment damaged. Lightning strikes damaged several buildings and chimneys. Landslides reported in many sections of city, and in some places water from hillsides flowed in back doors and out front doors. Persons still being rescued from marooned cars 2 hours after storms struck. Hundreds of manhole covers popped by force of water pressure in sewers. Trolley service disrupted by debris on tracks, and utility lines suffered many breaks and interruptions.
Pitt County, N.C.	22	4 p.m.						10,000	Hail	3 square mile area damaged.
Evansville, Ind.	22	4:09 p.m.				15	10,000		Wind	Damage mostly from falling trees on power lines.
Carbondale, Ill.	22	6 p.m.					10,000		Thunder- storm and wind	Damage chiefly due to wind. Falling limbs and trees disrupted utility installations.
Hamilton County, Nebr.	22, 23, 25	Evening		12			15,000	35,000	Hail	
Chatham and Wayne Counties, N.C.	23	2:30-3 p.m.					20,000	20,000	Hail, wind, and electrical	Lightning damage to power lines. Hail damage to crops. 100-foot signal tower blown down at Seymour Johnson Field.
Colfax County (north- western portion), Nebr.	23	4 p.m.	880	1			Slight	600	Hail and wind	
Swift, Cottonwood, Renville, Wright and Hennepin Counties, Minn.	23	4:30-8:30 p.m.	220	150	0	10	675,000	See remarks	Tornadoes	About 70 barns, outbuildings, silos, steel granaries, windmills, farm machinery, and automobiles demolished; many homes, buildings, and barns damaged; much poultry and some livestock perished; plate-glass windows blown in; hundreds of trees uprooted; poles and wires down; growing crops damaged. Path of storm not continuous; direction northeastward. A number of reports of funnel-shaped clouds. All buildings on farm, 8 miles north of Danube, Renville County demolished when 3 separate funnel-shaped clouds merged into 1 huge funnel-cloud which descended to earth about 7:30 p.m. First great destruction occurred 2½ miles southeast of Benson, Swift County about 4:30 p.m. and the last great destruction about 8:30 p.m. in Lake Minnetonka area, Hennepin County.
Raymond, Clark County, S. Dak.	23	4:30-5:45 p.m.	*2	6				See remarks	Wind and hail	Hail, hens' egg to baseball size, damaged crops 2 miles southeast of Raymond.
Sioux Falls, S. Dak.	23	5-7 p.m.					75,000	Small	Wind	Sioux Falls and to southwest, south, and northeast. Sioux Falls reported 55 m.p.h. winds, gusts to 72 m.p.h. Substantial-size trees uprooted. Buildings damaged. Insurance companies reported total claims in Sioux Falls would total 1,000 and storm damage there would reach \$40,000. Evidence shows that strip was a squall line with violent straight winds.

See footnotes at end of table.



# SEVERE STORMS

JUNE 1952

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Brunswick, Hoke, Watauga, Edgecombe, and Richmond Counties, N.C.	23	5 p.m.					\$4,000	\$50,000	Hail	
York County (southern half), Nebr.	23	5:25-9:30 p.m.	*12 to 14	25			100,000	250,000	Hail and wind	
Duluth and vicinity, Minn.	23	5:30 p.m.					35,000	See remarks	Rains	Excessively heavy rains that accompanied severe thunderstorms flooded many basements, streets, roads, and highways. Growing crops washed out or damaged.
Clay County (northeast- ern por- tion), Nebr.	23	5:45-6:45 p.m.	*2½	2 to 3			Slight	500,000	Hail and wind	
Timmons- ville, S.C.	23	6 p.m.					60,000		Wind	Heavy wind blew side of large tobacco warehouse down and ripped roof off. Many trees and TV aerials toppled.
Cherokee County (northern portion), Iowa	23	6:30-7:15 p.m.	400	30	0	2	800,000	200,000	Tornado	Funnel cloud moved east-northeastward across northern Cherokee County, damaging 53 farmsteads of which 13 were completely demolished and 34 considered major disasters. Tornado touched southern portion of small town of Cleghorn, but passed 4 miles south of Marcus and about 2 miles south and east of Larrabee.
Fillmore County (northern portion), Nebr.	23	6:30-10 p.m.	*9	13			Slight	200,000	Hail and wind	Probably same storm as listed above, York County, as counties are adjacent.
Forestburg, Sanborn County, S. Dak.	23	6:45-7:05 p.m.	44	2	0	0	Small	Small	Tornado	Fences, haystacks, and corn plants destroyed by tor- nado that touched ground occasionally during 20 minute period. Pictures of cloud taken by Harold Edwards.
Rock Rapids to Esther- ville, Iowa	23	7:15-7:45 p.m.					80,000		Wind and water- spout	Strong winds blew down trees, breaking power and com- munication lines. Near Rock Rapids wind destroyed large barn, killing 7 livestock, and severely dam- aged windmill. At Fuller Airport 2 airplanes torn loose from their moorings and severely damaged. Screen of drive-in theatre blown down. On Lake Okoboji boats sunk and several docks ripped out. A 20-foot waterspout observed on Lake Okoboji.
Minnesota Lake (vi- cinity of), Minn.	23	9 p.m.	*2	4			See remarks	30,000	Hail	Light to moderate hail caused considerable damage to growing crops and some damage to real property.
Minnesota, central and southern counties	23	P.m.			1	3	15,000		Electri- cal	A number of places struck by lightning. At Duluth, man died of shock after bolt of lightning struck his home.
Minnesota, central and southern counties	23	P.m.				Sev- eral	200,000	See remarks	Wind, rain, and hail	Thunderstorms, with high wind, heavy rain, and hail. A number of barns, outbuildings, silos, and wind- mills demolished; houses, buildings, and barns damaged; plate-glass windows blown in; power and communication lines down; radio transmitter tower wrecked; radio and television antennae down; hangar and 3 airplanes on ground demolished; many trees uprooted or branches broken off; much poultry and some livestock perished; several personal injuries; growing crops damaged.
Centuria, Polk Coun- ty, Wis.	23	9:15 p.m.	100	15	2	6	250,000	0	Tornado (pos- sible)	Occurred during period of severe thunderstorms in western Wisconsin. No funnel-shaped cloud seen, but witnesses say wind was of explosive force.
Wisconsin, west-central portion	23	Night					100,000	Small	Thunder- storms	Severe thunderstorms in Barron, Rusk, and adjoining counties to the south. Barns destroyed or damaged.
Cheyenne County (southern portion), Nebr.	23-24	9:30 p.m.— 3 a.m.	*20	50			150,000	1,200,000	Hail and wind	3 separate hail- and windstorms; damage widespread.
Escanaba, Mich.	24	Early morning					6,000		Electri- cal	House struck by lightning.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JUNE 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Philip, Haskell County, S. Dak.	24	9 a.m.			0	0	\$ 0	\$ 0	Tornado	Airline pilot reported funnel cloud touched ground for short period in area 15 miles northeast of Philip.
Hand, Beadle, Kingsbury, Miner, and Jerauld Counties, S. Dak.	24	1:40-4 p.m.	*2-5	50			3,000,000	500,000	Hail	Virgil, Huron, Iroquois, Howard, Wessington Springs, Ft. Thompson, and Gannvalley reported damage. Hail up to 3 inches in diameter in 3 separate narrow strips. Cars and buildings received majority of damage, since Huron and other small towns were in path. In Huron, hail as large as 10 inches in circumference fell, damaging windows, roofs, signs, and cars, with estimated total damage \$1,000,000; hail fell for 30 minutes with a 4-minute deluge around 2:12 p.m. causing most damage.
Minnesota, central and southern counties	24	4-8 p.m.			See re- marks		500,000	See remarks	Wind, rain, electric- cal, hail, and possibly tornado	Thunderstorms accompanied by high wind, heavy rain, severe lightning, and hail. Many barns, outbuildings, garages, silos, windmills, and steel granaries wrecked; numerous homes, buildings, barns, drive-in theatres, hangars, and a number of airplanes on ground damaged; fences at Fair Grounds and ball parks, television towers, antennae, signs, billboards, and awnings down; plate-glass windows blown in; extensive damage to power and communication lines; hundreds of trees uprooted and many homes and automobiles damaged by falling trees; much poultry and some livestock perished; numerous personal injuries; growing crops damaged. In Wilmar, Redwood Falls, and North Branch areas storm assumed tornado proportions.
Martin County and vicinity, Minn.	24	P.m.					20,000	100,000	Hail	Heavy hail caused much damage to growing crops and considerable loss to real property. Some hailstones size of golf balls. Some fields of small grains, corn, and soybeans a total loss. Heavy rains accompanied storm.
Minnesota, central and southern counties	24	P.m.					10,000		Electric- cal	A number of places struck by lightning. A barn in Lyon County nearly destroyed by fire.
Halifax and Pittsylvania Counties, Va.	24	4:30 p.m.	1,760	20			See remarks	Consider- able	Hail	Narrow strip extending from near Gretna to Halifax suffered considerable damage to tobacco and corn; in worst of hail, tobacco damage ran as high as 60 percent. Car tops and hoods dented and some glass broken.
New York, northern portion	24	P.m.			1		See remarks		Wind, rain, and electrical	Heavy losses resulted from high winds, lightning, and flooding. One person died from a lightning shock. Trees and utility lines downed.
Le Sueur, Hennepin, Ramsey, and Anoka Coun- ties, Minn.	24	6:30-7:15 p.m.	267	90	0	15	900,000	See remarks	Tornadoes	About 35 houses, barns, outbuildings, garages, large canvas tent, silos, windmills, steel granaries, farm machinery, and automobiles demolished; many homes, buildings, barns, automobile racing speedway, hangars, and several airplanes damaged; much poultry and some livestock perished; hundreds of trees uprooted; many poles, wires, radio and television antennae down; plate-glass windows blown in; growing crops damaged. Path of storm not continuous; direction northeastward. A number of reports of funnel-shaped clouds being observed. Large trailer truck heavily loaded with tombstones was lifted off road in extreme southern Anoka County and wrecked. First great destruction occurred at Cleveland, Le Sueur County, about 6:30 p.m. and last great destruction about 7:15 p.m. in northeastern Anoka County.
Wakefield, Mich.	24	Evening					See remarks		Rain	Roads and basements damaged. Some hail fell but did no damage.
Ironwood, Mich.	24	Evening					See remarks		Electric- cal and rain	Heavy rains caused flooding and washouts. Lightning struck a store.
Harlan (5 miles east of), Iowa	24	8:30-8:55 p.m.					6,500		Wind	Damage to buildings on several farms.
Wisconsin, western and northwest- ern portions	24	8:45 p.m.			1		350,000	Minor	Thunder- storms, or sever- al tor- nadoes	Reports indicate more than 30 barns blown down in Barron, Rusk and adjoining counties. A 450 ft. steel radio tower at Rice Lake toppled. More than 170 long distance telephone lines temporarily out of service; power lines disrupted by falling trees.

See footnotes at end of table.



# SEVERE STORMS

Table 4—Continued

JUNE 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Colfax County (southern portion), Nebr.	24	11:15–11:45 p.m.	*2	8			\$500	\$7,000	Hail	
Kenosh (near), Millard County, Utah	24							See remarks	do	Severe hailstorm lasting about 10 minutes caused heavy damage locally to gardens, fruits, and some fields.
Pennsylvania, entire State	25–27				12	Scores			Heat	12 persons died and scores were prostrated over Pennsylvania from the 100° heat during these days.
Mackinaw City, Mich.	25						6,000		Electrical	Lightning struck house which burned.
Escanaba, Mich.	25						See remarks		Electrical, wind, and rain	Utilities interrupted. Trees blown down.
Onaway, Mich.	25						10,000		Electrical and wind	Barn burned, and 2 barns blown down.
Rudyard, Mich.	25						10,000		Wind	High winds wrecked several barns.
Deuel County, Nebr.	26	1:30 a.m.	*9	20			75,000	600,000	Hail and wind	Damage spotted, mostly to winter wheat.
Colorado, northeastern portion	26	3:15–10 p.m.	*45	125			60,000	2,000,000	Wind, dust, rain, and hail	Destructive wind-, dust-, rain-, and hailstorms prevailed over scattered sections of an area approximately 5,000 square miles, extending from eastern Larimer County to western Yuma County. Greater damage from hail to standing grains, while hay, corn, other row crops, and fruits also suffered severely.
Scotland, Beaufort, Martin, and Pitt Counties, N.C.	26	4–6 p.m.						10,000	Hail	10 square mile area damaged.
Woodrow, Colo.	26	4:30–5 p.m.	*2	7			1,500	100,000	Tornado and hail	A twister of considerable intensity, accompanied by heavy hail, swept an area of approximately 14 square miles in vicinity of Woodrow, some 30 miles southwest of Akron. Damages about equally divided between tornado and hail. A granary and several small farm buildings destroyed.
Victor (3 miles northwest of), Mont.	26	4:30 p.m.	880					Some	Hail	50 percent damage to peas; cherries damaged.
Esterbrook, Wyo.	26	Afternoon					Light	Light	Rain and hail	Rain caused flood in Horseshoe Creek and its tributaries. Flood caused damage to fences, corrals, and bridges.
New England, various locations	26	Afternoon and evening			2		40,000	Light	Electrical and wind	Area of thunderstorms marking southerly progress of Canadian air mass interacting with extremely warm tropical air; damage reported from many localities throughout Section. 2 persons killed by lightning; high winds toppled trees and pulled down utility wires; lightning caused fires to dwellings and farm buildings. Damage estimate incomplete.
Decatur to Washington Counties, Kans.	26	5–7 p.m.		250	0	0	20,000	15,000	Wind, hail, and tornado	Winds, becoming severe in some localities, occasional hail, and rain marked movement of squall line across northern Kansas from Decatur County to Washington County. Tornado formed southwest of Phillipsburg at 5:15 p.m., moved near surface for 6 miles, lifted, and then dipped again east of Phillipsburg for about 3 miles. 8 buildings wrecked, in addition to damage to windmills, hayracks, and trees. Other area of considerable damage was 15-mile strip from 12 miles southwest of Washington to 3 miles northeast, where hail and wind combined to shatter windows, flatten grain fields, damage awnings, and break tree limbs. Property damage by tornado, \$14,000; by wind, \$2,000; by hail, \$4,000. Crop damage by tornado, \$10,000; by hail, \$5,000.
Guide Rock (near), Nebr.	26	5:28 p.m.	220	3/4			1,045	Slight	Wind	

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JUNE 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Cottonwood (near), Idaho	26	6 p.m.	*2	Sev- eral			\$2,500		Rain and electri- cal	8 head of beef cattle, valued at \$2,500, killed by lightning during thunderstorm that struck area along Snake River south of Cottonwood. Heavy rains washed debris from sides of canyon onto road, but roadbed not damaged.
Clay County (southeast- ern por- tion), Nebr.	26	6:30-8:30 p.m.	*3				1,000	\$30,000	Hail and wind	
Crete (near and east of), Nebr.	26	10 p.m.	*2	5	0	0		Slight	Tornado (pos- sible)	Several buildings, mostly barns and farm outbuild- ings, blown down.
Indianapol- is, Ind.	27	1:45 a.m.				1	25,000		Electri- cal, wind, and rain	20 lightning-set fires; power lines damaged; 1 perso injured by lightning.
Avon, Ind.	27	A.m.					3,500		Electrical	Barn destroyed.
Oskaloosa, Iowa	27	Early morning					See remarks		Wind	Strong winds blew down many trees, breaking power and communication lines and damaging buildings, and an automobile.
Norton Coun- ty, Kans.	27	2:30 p.m.	100	3	0	0	2,000	300	Tornado, rain, and hail	Small tornado dipped briefly on farm 6½ miles south- east of Norcaton to move barn from foundation, smash car, and damage other buildings. Some rain and light hail fell in area.
Kimball County (southern portion), Nebr.	27	4-4:15 p.m.	*2	20			Slight	Heavy	Hail	Wheat nearly ready to harvest; loss ranged up to 90 percent over several thousand acres.
Richmond, Va.	27	4 p.m.					Much minor		Electri- cal	Many transformers, a number of buildings, and some telephone cables hit by lightning, causing all of city's fire equipment to be in action at 1 time or another. The 2,300-volt power line feeding elec- tric chair at State Penitentiary struck, cutting wire in two and burning out some of conduit; de- layed an execution set for next day.
Guernsey (near), Wyo.	27	Afternoon					0	Light	Tornado and hail	Tornado funnel sighted, but it failed to reach the ground and caused no damage. Light damage by hail.
Franklin, Beaufort, Brunswick, Greene, Wilson, Johnston, Cleveland, and Cald- well Coun- ties, N.C.	27	5-9 p.m.						60,000	Hail	40 square mile area damaged.
Franklin County, N.C.	27	9 p.m.			0	0	5,000	1,000	Tornado (prob- able)	Number of trees blown down in Louisburg; cement wall blown down at filling station; glass show windows blown outward and roof torn off of grocery store.
Suffolk, Va.	27	Night					15,000		Electri- cal	Lightning set fire to and destroyed 3 large barn-like exhibit buildings at fair grounds; unknown number of animals killed.
Onaka, S. Dak.	27	11 p.m.			0	0	See remarks		Tornado	Struck 3 miles east of Onaka.
Forsyth, Mont.	27							Some	Hail	About 10 percent loss to wheat.
Quay County (southwest- ern por- tion), N. Mex.	27						See remarks		do	Heavy hail in small areas.
Duval, Lake, Alachua, Nassau, Liberty, Calhoun, Lafayette, Gadsden, and Wakulla Counties, Fla.	27							See remarks	do	Hail reported from one or more points in each coun- ty. Most damage suffered by tobacco.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JUNE 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Dawson (vicinity of), Minn.	28	3 a.m.					\$25,000	See remarks	Wind	Thunderstorm moved northeastward. 2 barns, outbuildings, silos, and windmills demolished; houses, and farm machinery damaged; many trees uprooted; about 24 head of livestock and much poultry perished. Growing crops damaged.
South Bend, Ind.	28	4:45 a.m.					20,075		Electrical	2 houses destroyed, 1 or 2 others damaged.
Columbia, S.C.	28	1:30 p.m.			1				do	Soldier at Ft. Jackson killed by lightning.
Alleghany, Buncombe, Craven, Pitt, and Harnett Counties, N.C.	28	P.m.					\$200,000		Hail	30 square mile area damaged.
LaGrange, Ga.	28	6 p.m.			1		Small		Wind and electrical	Very small losses resulted from high winds and lightning that disrupted a power line; lineman killed in attempting to remove "live" wire.
Academy, Charles Mix County, S. Dak.	28	7-7:20 p.m.	100	1	0	0	See remarks		Tornado	Haystack and 100 yards of fence destroyed.
Menno, S. Dak.	28	10:05-10:20 p.m.			0	0	800,000		do	Funnel touched ground, and lifted again immediately. Struck farm buildings.
Aberdeen, Miss.	28						5,000		Wind	Damage to roofs and trees.
Lauderdale County, Miss.	28					1	10,000	Slight	Thunder-squall	Winds to 52 m.p.h. at Meridian Airport. Woman injured at Electric Mills when car crashed into tree, blown down by high winds.
Nassau and Lake Counties, Fla.	28						See remarks		Hail	Some damage to crops in Lake County. No damage reported from Nassau County where hail reported at Hilliard.
Cut Bank (10 miles northwest of), Mont.	29	3 p.m.	*4	20			40,000		do	
Yadkin County, N.C.	29	3-5 p.m.					55,000		do	3 square mile area damaged.
Frederick, Tillman County, Okla.	29	4:30-5 p.m.	Narrow		0	1	1,000		Tornado	Unroofed 2 buildings. Damaged farm equipment and buildings. 1 person injured on golf course. Tornado moved northwestward.
Seattle, Wash.	29	Afternoon					5,000		Rain	Most of damage limited to flooding of streets and basements in north section of city. Approximately 135 basements flooded and 15 blocks of street damaged to some extent when storm sewers overflowed.
Chambersburg-Shippensburg section, Pa.	29	Afternoon					(Thousands)	(Hundreds)	Thunderstorms, hail, and winds	High winds unroofed 6 sheds, caused 1 to collapse, and did other damage, amounting to \$8,000 at Leisterkenny Ordnance Depot. Chambersburg got a second battering by wind with much tree- and utility-line damage. In Scotland-Pinola-Shippensburg area, barn unroofed, silos overturned, and crops damaged by winds. 2 hailstorms struck in this area, damaging oats, wheat, corn, tomatoes, and orchards, and breaking many windows.
Ohio, north-central and northeastern portions	29	Afternoon and evening				1	1,250,000		Electrical, wind, and rain	Storm developed over western Lake Erie, moved on shore in Sandusky-Norwalk area in form of squall line preceding cold front. Storm along squall line moved in fan fashion over northeastern Ohio from northwest to southeast, as far south as Steubenville, on Ohio River. High waves along Lake Erie shore damaged boats and cottages. Elsewhere, damage caused by strong winds, heavy rain and hail. Trees blown down on homes, cars, and power lines. A lightning bolt struck Cleveland National Guardsman and burned his face while on rifle range near Boston Mills in Summit County. Damage in Norwalk, \$500,000; Norwalk vicinity, \$250,000; Steubenville, \$300,000; northeastern Ohio, over \$200,000.
Harrisburg area, Pa.	29	Afternoon				4	(Thousands)		Electrical, hail, wind, and rain	Large barn near McVeyton destroyed by fire, after being struck by lightning. High winds broke and toppled trees near Williams Grove Park and rains forced cancellation of auto races. 4 persons overcome by heat before relief provided by thunder-

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JUNE 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Harrisburg area, Pa. (cont'd.)	29									storms. Lightning caused cable blowup in Manchester area with power out for 3 to 4 hours. Farm buildings damaged and 350 chickens killed when chicken houses levelled.
Pittsburgh-Greensburg area, Pa.	29	Afternoon					(Tens of thous- ands)		Electrical, winds, and rains	Thunderstorms and high winds crippled power and phone services in many areas. Duquesne Light Co. spokesman reported more wires down than in any previous storm in company's history. 1,000 telephone lines out in Pittsburgh and 3,000 out in Greensburg. High water and mud again disrupted trolley service; 3 cars struck by lightning. At an airport in Monroeville, a 600-foot hangar blew down, crushing 19 planes; estimated loss, \$50,000. At least 6 river craft capsized. Coraopolis and McKeesport hardest hit, but damage extensive in radius of 15 miles of Pittsburgh. 3 hospitals, Greater Pittsburgh Airport, TV station, dairies, and ice cream plants affected by power failures of 1 hour or more. Scores of cars damaged by falling trees and branches.
Washington County, Kans.	29	6 p.m.					\$4,000		Wind	Severe wind occurred for second time in week in Washington, unroofing 1 building, blowing in windows, and damaging street signs. Rain fell during and after windstorm.
Washington, D.C. and vicinity	29	6-7 p.m.				3	2,000		Electrical and wind	Several houses and a church slightly damaged by lightning. Numerous trees and wires blown down. A tin roof torn off of house. Hail caused a little damage.
Baltimore and Middle River, Md.	29	P.m.					See remarks		do	20 boats overturned on Middle River and Chesapeake Bay, 8 persons rescued after spending 1 hour in water. Lightning struck television aerials. Power lines, telephone wires, and trees felled. Basements flooded. Most damage caused by winds. Wind gusts reached 80 m.p.h. at Friendship Airport.
Essex, Union, Bergen and Hudson Counties, N. J.	29	P.m.					15,000	\$1,000	Electrical, wind, and hail	Severe structural damage to large distillery caused by lightning. Several small residential fires also due to lightning. Damage to many homes from falling trees; 1 car demolished. Cellars flooded in urban area. Crop damage from hail.
Tidewater and South- side, Va.	29	Evening and night				4	150,000		do	Violent electric storms with high winds and some hail disrupted telephone and electric services, toppled trees, caused fires and damaged much property. Hardest hit were Richmond and areas to east. Lightning and wind gusts of gale force caused most of wreckage, but power failures presented greatest problem; some sections were without power and telephone services for more than 12 hours. Standing corn and small grains beaten to ground by wind and some hail, but considerable recovery could be expected. Injuries by falling trees at Fairview Beach.
Ohio, Marshall, and Wood Counties, W. Va.	29-30	8 p.m., 29th- 5 a.m., 30th					11,000	500	Electrical, rain, wind, and hail	In Ohio and Marshall Counties many trees uprooted, blocking streets and highways; power lines and poles damaged; 1 transformer and 2 homes struck by lightning; several buildings and an automobile damaged by falling trees and branches. In Wood County considerable damage to crops and gardens by wind and hail; several buildings destroyed and roofs blown off of several others by high winds; considerable poultry killed; 2 homes damaged by lightning.
Clyde Park, Mont.	29	11:15 p.m.						Some	Hail	Less than 20 percent damage to crops.
Tampa Bay, Fla.	29				1	1			Electrical	Lightning struck small boat in Tampa Bay, killing 1 of 2 occupants and causing minor injury to the other.
St. Petersburg, Fla.	29				0	0	See remarks	0	Water-spout and tornado	Waterspout formed over Tampa Bay and moved ashore as tornado that unroofed 1 home and caused other damage, such as broken windows. Storm dissipated soon after reaching land.
Valley View, Cooke County, Tex.	30	3:40 p.m.					5,000		Wind and hail	Wind estimated over 50 m.p.h. Community about 10 miles south of Gainesville. Houses unroofed, barn blown down, trees uprooted. Small airplane damaged.
Nashville, Tenn.	30	5:13-7:15 p.m.			0	0	See remarks		Wind and tornado	Several trees uprooted and limbs torn off trees by the dozens, blocking several streets with debris. Area hit was roughly from Hillsboro road northeastward to Donelson. Approximately 500 telephones out of use. Fastest speed of wind at airport was 71 m.p.h. from northwest. Tornado cloud observed by 1

See footnotes at end of table.



# SEVERE STORMS

Table 4—Continued

JUNE 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Nashville, Tenn. (cont'd.)	30									person approximately 8 miles south of Nashville, moving northeastward at 6:05 p.m.
Concord, Knox County, Tenn.	30	6:30-7:30 p.m.					\$2,000		Thunder- storm	Some roofs of houses and barns torn off, and trees and telephone poles blown down.
Henderson County, N.C.	30	8 p.m.						\$12,000	Hail	1 square mile area damaged.
Jefferson County, Ky.	30						5,000		Wind	Wind blew roofing off distillery in Shively. Roofing struck and nearly demolished small building nearby.

## LATE REPORTS:

Osborne County, Kans.	May 21	6 p.m.			0	0	0	0	Tornado	Funnel moving east-northeastward observed coming to ground in pasture 4 miles northwest of Alton. Observed shortly before hail began. (Hailstorm reported as extending from Sherman to Washington Counties).
Topeka (4 miles west of), Kans.	June 9	Afternoon					3,000		Electrical	18 registered Holstein heifers, standing under tree, killed by lightning.

• Miles instead of yards.

◦ Crop damage included with other property damage.



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

JUNE 1952

The severe flooding during June was confined to local basins scattered over the country. In the Connecticut Basin, the flood of June 1952 was the 5th highest during the past 15 years. The flood in the lower Little Blue Basin in Nebraska had been exceeded on only three occasions during the period of record since 1936. Severe flooding was reported in the upper Big Blue Basin in Nebraska. The flood stages in the Colorado Basin were the highest in recent years along several streams and the highest known at many places.

**ATLANTIC SLOPE.**—A flash flood occurred in the headwater area of the Merrimack Basin on the 1st and 2d. This flood was due to rainfall averaging 3 to 4 inches during a 20-hour period on the 1st. Rainfall amounts were considerably less in the middle and lower reaches. Overflows were confined to the headwater tributaries where some damage was done to agriculture and highways. Water reached the first floors of a few houses near the river banks. No overflows occurred below Plymouth, N. H.

The June flood of 1952 in the Connecticut River Basin was the 5th highest flood of the past 15 years, and the highest of record during the period from mid-May to mid-September. This flood was due to heavy rainfall on the 1st which totalled up to 4 inches at some points in the basin. The runoff was excessive since it followed a wet period of several weeks. This flood caused serious damage to crops which were well out of the ground at the time, and the loss of these crops by farmers also caused a depressing effect on businesses, such as farm machinery, etc., which depend on farm income. Three persons lost their lives in Ludlow, Vt., as a result of the flood when their car slid into the swollen Black River, tributary to the Connecticut. The Associated Press estimated total losses in the Valley as approximately \$2,000,000.

**UPPER MISSISSIPPI BASIN.**—Bankfull stages were reached on the extreme lower Root River in Minnesota below Hokah on the 24th causing minor agricultural damage to pasture land.

Heavy thundershowers on the 20th and 21st in central Iowa caused flash floods on smaller streams, and minor flooding on the Des Moines River. The pattern was repeated on the 26th and 27th but with lower crests. No serious losses were reported as a result of the flood waters.

Rains averaging 1.4 inches over the upper Illinois Basin during the 24-hour period ending at 8 a.m. on the 14th caused minor flooding along the main stem. No damage resulted from these minor overflows.

**MISSOURI BASIN.**—Minor flooding occurred on headwater streams in the Yellowstone River Basin along Dick Creek around Lander, Wyo., on the 7th and on Popo Agie River below Lander, Wyo., between the 7th and 13th. Minor overflows occurred along the Yellowstone River from Livingston to below Billings, Mont., between the 5th and 15th. The river crested at Billings, Mont., just 0.18 foot short of flood stage of 11 feet. Only very minor damage was reported and most of that was to bottom land crops.

Heavy rainfall during the night of the 26th and 27th over a wide area from the Salt Creek Basin in Nebraska to northwestern Iowa, caused rather heavy runoff in the Salt Creek Basin and in tributaries in northwestern Iowa. Most flooding of consequence occurred along the small tributary streams where heavy concentrated runoff was in

excess of normal stream channel capacity. This occurred most noticeably in the Wahoo Creek Basin, a tributary of lower Salt Creek.

Flood stages occurred during the month on the upper Big Blue River and in the lower portion of the Little Blue Basin. The severe flooding on the Big Blue Channel in Nebraska at Crete and Beatrice moderated near the Nebraska-Kansas line with stages remaining well within the banks at and below Randolph. Light flooding on the upper extremity at Ulysses passed Seward, Nebr., without a major rise. Severe flooding on the Little Blue at Endicott, Nebr., where the crest was 14.86 feet on June 28, had been exceeded on only three occasions during the period of record since 1936. Downstream the crest levelled out to a minor overflow in the Hanover area. The overflow on the Big Blue River developed from heavy thundershowers on the night of the 26-27th. Rainfall varied from 1.5 to occasionally 4 inches in local areas with an average of about 2.5 inches over the Nebraska portion of the watershed. Little or no rain fell in northern Kansas. Contributing rainfall of 1.5 to 2.5 inches which was centered in the Crete, Nebr., area fell during the preceding day. There were also a few heavy local showers reported on June 24. Rainfall over the lower Little Blue Basin in Nebraska ranged from near 2 to 3 inches on the 27th. Considerable damage resulted to crops on river bottom lands in Nebraska.

Minor overflows occurred along the lower Missouri and tributaries from the heavy thundershowers between the 20th and 23d. Several stations in the area reported amounts up to near 5 inches. The flooding was much less than would have occurred had not the antecedent period been very dry.

**OHIO BASIN.**—A flash flood occurred on the 22d in the Pittsburgh area. In a 3 to 6-hour period rainfall amounts reported were 2.34 inches at Pittsburgh, 2 inches at Springdale, Pa., and 3.4 inches at Lock 2, Sharpsburg, Pa. Lightning, thunder, and high winds accompanying this storm caused damages to homes and utilities to run into thousands of dollars and was described as the worst storm to hit Pittsburgh in 40 years. In the Washington Boulevard area, the scene of many past flash floods, automobiles were marooned and their occupants rescued. Water on the Boulevard ranged up to 6 feet in depth. No loss of life was reported.

The lower Wabash River in Indiana was cresting near flood stage at the beginning of the month from rainfall in May. The river had fallen to near seasonal stages when rainfall averaging near 3 inches fell over the central Wabash River and West Fork of the White River on June 12 through 14. This rain caused flooding from Lafayette and below on the Wabash with only a slight rise on the White River. A relatively narrow but heavy band of rain fell again on the 21st and 22d. The heaviest rain was centered between Indianapolis and Terre Haute with Greencastle, Ind., reporting a total of 7.1 inches. The Wabash River went into flood again for the 3d time during the month; however, the serious flooding was confined to the West Fork of the White River and tributaries. The Eel River at Bowling Green, Ky., crested slightly over 21 feet, which is the 5th highest stage of record.

Most other Ohio River tributaries remained at seasonal low stages with only scattered minor rises



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS—Continued

JUNE 1952

as the result of locally heavier showers. The Ohio River was in pool in upper portion at the beginning of the month and falling in the lower portion.

**WEST GULF OF MEXICO.**—The upper Sabine River in Texas was overflowing slightly in the beginning of the month and the upper Calcasieu and Nezpique were high but falling. All streams were near normal as the month ended.

At the beginning of the runoff season the snow pack in the Rio Grande Basin above 8,500 feet was the greatest of record. During the entire month of May, with the exception of the first 3 days, the Rio Grande flowed up to a foot above flood stage at Espanola, N. Mex., but the levees served as ample protection against any flooding of adjacent areas. At Albuquerque, N. Mex., the Rio Grande flowed slightly above flood stage for 11 days during May and, while there were no instances of serious levee breaks in the middle Valley, several serious threats occurred, mostly with falling stages. The only serious threat to the Espanola area and above came with the failure of the small Martinson Diversion Dam about 4 miles above Lobatos Bridge in Colorado at about 8 a.m., on May 8. The break released about 4,000 acre-feet of water into the main channel of the Rio Grande in approximately 15 minutes. The resulting wall of water moved rather slowly causing a rise of slightly more than 3 feet at Embudo, N. Mex., in a narrow canyon 83 river-miles downstream about 15 hours after the break occurred. Although a stage of 11.3 feet, 3.3 feet above flood stage, was reached at Embudo, no damage of consequence was reported.

The Rio Grande was flowing slightly above flood stage at Espanola, N. Mex., and slightly below flood stage at Albuquerque, N. Mex., in the beginning of June. Both of these communities are rather well protected by levees but these levees which are composed mostly of sandy soil are under a constant threat with stream flow near or above flood stage, and almost invariably are threatened more seriously during prolonged periods of even moderately high discharge. At Espanola the Rio Grande flowed above flood stage on 19 days during June and at Albuquerque 14 days but there was no flood damage in either area.

Portions of the city of Albuquerque were flash-flooded on the evening of June 2, 1952, due to heavy rains. The embudo arroyo, a natural dry-run most of the time offers the principal flash flood threat to the Stronghurst area of North Albuquerque. This arroyo carries the rainfall runoff from a large portion of the west slope of the Sandia Mountains, and also from a large undeveloped section lying between the Sandia foothills and the easternmost sections of the city. Campus Boulevard drainage is an old arroyo bed and carries rainfall runoff from the large residential section in the southeastern part of the city. This drain carries a considerable amount of water during rainstorms but has seldom become a flood threat to the lower portions of the city paralleling the Santa Fe Railroad tracks, where it created considerable havoc this time. Precipitation during the 24-hour period averaged 1.8 inches. Considerable damage resulted from the flash flood.

## GULF OF CALIFORNIA DRAINAGE

**Colorado Basin.**—Overflows occurred again for the second consecutive month on the Gunnison River at Paonia and Delta, Colo. Flooding also was

reported on the Colorado River at Grand Junction and Fruita, Colo., and on the Eagle River at Eagle, Colo. Stages in 1952 were the highest in recent years along these rivers, and according to newspaper accounts, the highest known at many places. At Grand Junction, higher stages have been recorded but once; records are not available for checking the other points. The high stages this year were caused by the unusually heavy snows in the mountains feeding these rivers, combined with periods of well above normal temperature during the highest stages. The fact that the high runoff started unusually early and continued through a long period no doubt prevented considerably higher stages, which could have caused a great deal more damage. As the runoff season started, the snow pack in the San Juan Basin above the 8,500-foot level was the deepest on record. More than 150 inches had accumulated at Cumbres Pass and Wolf Creek Pass areas of the San Juan Mountains. Flood stage was exceeded on the Animas, tributary of the San Juan, at Durango, Colo., for the first 23 days of the month but only minor flooding of pasture lands resulted and there was no appreciable damage.

## PACIFIC SLOPE DRAINAGE

**San Joaquin and Sacramento Basins.**—Snow melt waters of the rivers of the San Joaquin Basin continued to flow from the Sierra Nevada Mountains during June. The monthly runoff amounted to 782,900 acre-feet on the Kings River, 470,893 on the San Joaquin, and the Merced, Kaweah, Tule, and St. Johns Rivers discharged above normal quantities of water during the month. Tulare Lake increased in size from about 30,000 acres at the beginning of the month to 75,000 acres with the breaking of the levee. After the initial flooding the lake settled down to an area of 61,700 acres with a water storage of 512,700 acre-feet on the 30th. Because of the vast amount of work done in strengthening, patrolling, and maintaining levees around Tulare Lake, damage was negligible. Only two sections of land were under cultivation and destroyed. Warnings of high water prevented the planting of 17,000 acres that would have been destroyed had it been planted. De-watering this area will cost \$60,000 but will enable planting this fall so an entire agriculture year will not be lost. Other areas expended about \$200,000 in levee construction, repair and maintenance reducing damage by additional millions of dollars.

The Stanislaus and Toulumne Rivers overflowed near their mouths, but since this area is natural overflow land which has not been greatly developed, the damage was not too significant. The only loss involved was that due to the moving of cattle to other pasture lands. One major break occurred in the levee system on the lower San Joaquin below Vernalis, Calif., during the latter part of May and another on June 2. Water from the latter break flowed through Reclamation District No. 2075 and flooded about 1,200 acres. This water continued moving northward outside the levee system and reentered the river just above Lathrop, Calif., where it exceeded the flood stage of 17 feet by 0.3 foot on the 4th. By the end of the month the river had fallen to a stage of 7.7 feet at this point. Approximately 15,000 acres were flooded in the San Joaquin area below the Merced River due to levee breaks. Only 500 acres of this land could be replanted to crops this summer. In the Mokelumne River Basin, 700 acres were flooded north of Lockeford due to a levee break which resulted in the



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS—Continued

JUNE 1952

loss of crops valued at \$90,000.

In the Sacramento Basin, stages at the beginning of the month were much below danger level and continued to recede steadily during the month. Temperatures the last few days of May and the first week of June were about normal. However, they fell off rapidly after the first week of June to the extent that the monthly average for the month was the lowest since June 1923. As a result, natural flows on all of the leveed rivers diminished

steadily.

Columbia Basin.—The lower Columbia in the vicinity of Vancouver, Wash., and the Willamette estuary at Portland, Oreg., continued above flood stage for several days after the close of May. Both rivers, however, were in gradual slow recession following May 29. The Willamette receded below flood stage at Portland on the 3d and the Columbia at Vancouver on the 17th.



# FLOOD STAGE DATA

(All dates in June unless otherwise specified)

Table 5

JUNE 1952

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
<b>ATLANTIC SLOPE DRAINAGE</b>	<b>Fl</b>			<b>Fl</b>	
Baker: Rumney, N. H.	7	1	2	10.7	2
Pemigewasset: Woodstock, N. H.	9	1	2	11.2	1
Plymouth, N. H.	11	2	2	15.1	2
Connecticut: White River Junction, Vt.	18	1	3	21.2	2
Montague C. ly, Mass.	28	1	4	33.3	2
Holyoke, Mass.	9	2	4	11.0	3
Hartford, Conn.	16	2	7	22.2	3
<b>MISSISSIPPI SYSTEM</b>					
<b>Upper Mississippi Basin</b>					
Tacoon: Van Meter, Iowa	13	27	28	14.1	28
Middle: Indianola, Iowa	14	21	23	21.9	22
Des Moines: Tracy, Iowa	14	22	23	17.2	22
Eddyville, Iowa	15	22	24	20.2	23
		29	30	15.8	29
Ottumwa, Iowa	9	22	24	13.0	23
Illinois: Morris, Ill.	13	14	16	16.0	15
LaSalle, Ill.	20	15	18	22.3	15
Havana, Ill.	14	21	**	15.8	24
Beardstown, Ill.	14	23	**	16.0	27-28
<b>Missouri Basin</b>					
Salt Creek: Ashland, Nebr.	11	27	27	11.4	27
Nishnabotna: Red Oak, Iowa	15	22	22	15.5	22
Hamburg, Iowa	20	21	23	22.3	22
Wodaway: Clariada, Iowa	14	22	22	17.7	22
One Hundred Two: Maryville, Mo.	14	21	21	15.0	21
Little Blue: Endicott, Nebr.	9	27	29	14.9	28
Hanover, Kan.	14	28	29	16.1	28-29
Big Blue: Ulysses, Nebr.	15	26	27	16.0	27
Crete, Nebr.	16	26	**	24.0	27
				23.0	29
Beatrice, Nebr.	16	28	**	23.1	29
Barnston, Nebr.	18	29	**	23.6	30
Marysville, Kan.	35	30	30	35.1	30
Blue Rapids, Kan.	20	28	**	24.5	29
Grand: Chillicothe, Mo.	24	22	22	24.0	22
Sumner, Mo.	26	22	25	30.3	24
Brunswick, Mo.	12	23	26	14.3	24
Chariton: Novinger, Mo.	20	4	6	21.5	6
Missouri: Rulo, Mo.	17	21	23	18.3	22
		28	29	18.7	28
St. Joseph, Mo.	17	22	22	17.3	22
Waverly, Mo.	18	23	24	18.7	23
<b>Ohio Basin</b>					
West Fork: Spencer, Ind.	14	23	24	16.5	23
Elliston, Ind.	18	24	26	21.0	25
Edwardsport, Ind.	12	16	16	12.6	16
		23	**	17.9	27
Wabash: Lafayette, Ind.	11	14	16	16.0	15
Covington, Ind.	16	14	18	20.6	16
Montezuma, Ind.	14	15	19	20.8	17
		23	24	18.1	23
Terre Haute, Ind.	14	16	19	16.8	18
		23	25	16.0	24
<b>Red Basin</b>					
Sulphur: Naples, Tex.	22	May 26	2	25.1	May 30

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
<b>MISSISSIPPI SYSTEM (Cont'd)</b>	<b>Fl</b>			<b>Fl</b>	
<b>Red Basin (Cont'd)</b>					
Sulphur: (Cont'd) McCartney Bridge, Tex.	20	1	12	22.9	8
<b>WEST GULF OF MEXICO DRAINAGE</b>					
Sabine: Gladewater, Tex.	26	May 31	9	31.9	8
Mineola, Tex.	14	May 23	4	17.5	May 28
Rio Grande: Lobatos, Colo.	4	3	8	4.6	15
Espanola, N. Mex.	7	May 29	19	7.7	6
Albuquerque, N. Mex.	4	17	17	4.4	12
<b>GULF OF CALIFORNIA DRAINAGE</b>					
<b>Colorado Basin</b>					
Eagle: Eagle, Colo.	5	6	16	6.4	11-12
Gunnison: Delta, Colo.	11	5	17	12.2	9
Animas: Durango, Colo.	5	May 31	23	6.9	11
Colorado: Grand Junction, Colo.	11	5	17	12.4	8
Fruita, Colo.	14	9	11	14.1	9
<b>PACIFIC SLOPE DRAINAGE</b>					
<b>San Joaquin Basin</b>					
San Joaquin: Lathrop, Calif.	17	3	4	17.3	4
<b>Columbia Basin</b>					
Willamette: Portland, O-e.	18	May 17	3	20.2	May 24
Columbia: Vancouver, Wash.	15	May 10	17	20.3	24,29

\* Provisional

\*\* Continued at end of month



# RADIOSONDE DATA

Average monthly values

JUNE 1952

Table 20

ALBUQUERQUE, N. MEX. ( 836 MB. )				ATLANTA, GA. ( 981 MB. )				BIG SPRING, TEX. ( 923 MB. )				BISMARCK, N. DAK. ( 951 MB. )				BOISE, IDAHO ( 911 MB. )				BROWNSVILLE, TEX. ( 1013 MB. )				BUFFALO, N. Y. ( 988 MB. )																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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SURFACE				1,000				950				900				850				800				750				700				650				600				550				500				450				400				350				300				250				200				175				150				125				100				80				60				50				40				30				20																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
30	1,629	26.8	28	30	309	25.9	74	29	784	28.8	39	29	505	18.9	61	30	868	20.5	46	30	7	26.0	85	30	221	18.2	75	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84	30	191	14.0	78	30	13	24.9	91	30	238	25.7	69	30	792	27.4	48	30	1,195	29.0	33	29	1,908	17.2	33	30	3	26.8	84



# RADIOSONDE DATA

Average monthly values

JUNE 1952

Table 20-Continued

JOLIET, ILL. (992 MB.)				LAKE CHARLES, LA. (1015 MB.)				LANDER, WYO. (826 MB.)				LAS VEGAS, NEV. (931 MB.)				LITTLE ROCK, ARK. (1004 MB.)				MAZATLAN, MEXICO (1008 MB.)				MEDFORD, ORE. (967 MB.)					
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	
SURFACE	29	179	21.2	79	30	5	25.5	85	30	1,696	19.4	37	30	660	29.7	13	30	79	27.7	69	27	14	27.3	75	30	401	18.2	59	
1,000	29	105			30	136	25.9	78	30	11			30	15			30	118	28.3	66	27	81	26.8	76	30	110			
950	29	553	22.7	64	30	589	23.8	68	30	477			30	482			30	580	27.0	58	27	540	23.9	73	30	553	17.6	58	
900	29	1,023	20.2	63	30	1,059	21.0	63	30	951			30	960	28.3	16	30	1,050	23.4	66	27	1,007	22.8	69	30	1,011	14.1	62	
850	29	1,515	17.5	58	30	1,551	18.1	57	30	1,445			30	1,462	23.9	18	30	1,547	20.4	54	27	1,505	20.3	72	30	1,490	10.3	67	
800	29	2,030	14.8	49	30	2,069	15.5	49	30	1,970	19.6	31	30	1,987	19.1	22	30	2,068	17.2	55	27	2,027	17.4	73	30	1,992	6.7	70	
750	29	2,576	11.8	44	30	2,615	12.6	47	30	2,523	15.0	34	30	2,540	14.1	25	30	2,620	14.2	45	27	2,586	14.6	70	30	2,524	3.6	64	
700	29	3,149	8.4	45	30	3,190	9.5	43	30	3,099	10.0	39	30	3,113	9.3	27	30	3,195	10.9	38	27	3,158	11.9	65	30	3,076	-2.8	58	
650	29	3,758	4.7	43	30	3,804	6.3	39	30	3,710	4.8	44	30	3,728	4.7	27	30	3,815	7.2	34	27	3,784	7.8	66	30	3,672	-2.8	47	
600	29	4,405	-6.0	40	30	4,454	-2.6	33	30	4,356	-5.7	47	30	4,370	-7.7		30	4,462	-3.1	33	27	4,431	-3.6	68	30	4,297	-6.7	47	
550	29	5,095	-3.9	35	28	5,152	-1.9	34	29	5,048	-5.8	44	30	5,067	-3.8		30	5,166	-1.0	28	27	5,135	-1.2	66	30	4,975	-10.8	46	
500	29	5,843	-8.9		28	5,904	-6.5	31	29	5,784	-11.2	40	30	5,810	-8.8		28	5,916	-5.6	27	27	5,886	-6.0	61	30	5,696	-15.4	42	
450	28	6,553	-14.4		27	6,626	-11.9		29	6,591	-16.8		30	6,625	-14.6		28	6,739	-11.2		27	6,714	-10.8	49	30	6,488	-20.9	42	
400	28	7,335	-20.4		26	7,407	-18.5		29	7,459	-23.1		30	7,499	-21.2		27	7,628	-17.8		27	7,600	-16.1		30	7,343	-27.2	42	
350	27	8,508	-27.8		26	8,598	-25.9		28	8,422	-30.3		30	8,470	-28.7		28	8,611	-25.4		27	8,591	-23.1		30	8,291	-34.2	40	
300	27	9,597	-36.3		26	9,685	-34.2		28	9,501	-38.7		30	9,554	-36.9		28	9,711	-33.6		27	9,700	-31.6		30	9,352	-41.5		
250	26	10,830	-46.0		26	10,933	-44.1		27	10,727	-47.8		30	10,790	-46.2		26	10,955	-43.2		26	10,961	-41.3		30	10,569	-48.5		
200	26	12,282	-55.9		24	12,390	-55.4		26	12,170	-55.2		30	12,246	-53.8		26	12,433	-54.0		25	12,437	-53.9		30	12,020	-52.6		
175	24	13,115	-59.4		22	13,226	-61.1		26	13,020	-55.3		30	13,099	-56.2		26	13,279	-59.5		23	13,280	-60.8		30	12,882	-52.7		
150	23	14,070	-61.8		19	14,177	-66.2		25	14,005	-56.6		30	14,072	-58.3		26	14,232	-64.0		19	14,217	-68.3		30	13,874	-53.2		
125	23	15,189	-64.8		16	15,273	-69.8		23	15,157	-57.9		30	15,212	-61.0		25	15,335	-68.1		11	15,274	-72.1		30	15,043	-55.1		
100	23	16,548	-64.6		14	16,591	-71.0		21	16,562	-60.6		25	16,590	-63.8		19	16,665	-68.8		6	16,610	-74.2		28	16,465	-56.5		
80	20	17,918	-61.2		12	17,921	-68.4		19	17,952	-58.9		24	17,957	-62.9		18	18,007	-66.5		27	17,877	-56.7		22	19,705	-55.8		
60	17	19,713	-57.6		10	19,680	-61.8		17	19,776	-56.5		23	19,740	-58.5		16	19,769	-61.0		19	19,769	-61.0		19	20,866	-55.0		
50	17	20,868	-55.7		10	20,818	-57.4		16	20,931	-54.9		23	20,889	-56.6		12	20,909	-57.3		9	22,321	-54.0		15	22,302	-53.0		
40	16	22,293	-53.6		10	22,239	-53.9		13	22,368	-52.9		22	22,311	-54.0		9	22,321	-54.0		6	24,172	-51.3		6	24,139	-51.5		
30	14	24,155	-50.3		7	24,085	-49.1		11	24,232	-49.7		22	24,166	-51.7														
20	5	26,768	-48.1						6	26,937	-43.8		15	26,808	-47.8														
15													6	28,714	-45.6														

MERIDA, MEXICO (1011 MB.)				MIAMI, FLA. (1016 MB.)				NANTUCKET, MASS. (1011 MB.)				NASHVILLE, TENN. (994 MB.)				NORTH PLATTE, NEBR. (912 MB.)				OAKLAND, CALIF. (1014 MB.)				OKLAHOMA CITY, OKLA. (967 MB.)				
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	27	26.2	81	30	4	27.2	75	30	14	15.5	89	30	177	27.8	63	30	849	22.7	65	30	6	14.9	71	30	391	27.0	67
1,000	30	123	26.0	88	30	149	26.3	74	30	105	16.7	88	30	125			30	849	22.7	65	30	125	15.5	77	30	391	27.0	67
950	30	580	24.3	78	30	622	22.8	78	30	546	18.3	66	30	587	27.4	53	30	491			30	562	12.1	71	30	551	27.8	57
900	30	1,049	21.9	77	30	1,070	20.1	77	30	1,002	15.4	66	30	1,059	23.7	56	30	966	24.4	57	30	1,010	12.5	58	30	1,025	24.9	57
850	30	1,544	19.0	73	30	1,562	17.2	67	30	1,491	12.8	61	30	1,556	19.6	61	30	1,467	22.9	50	30	1,490	12.0	58	30	1,525	21.6	58
800	30	2,063	16.1	68	30	2,077	14.0	66	30	1,998	10.1	55	30	2,075	15.9	66	30	1,992	19.7	47	30	1,995	9.6	34	30	2,048	18.7	55
750	30	2,611	13.1	64	30	2,623	10.8	57	30	2,540	7.7	50	30	2,622	12.9	48	30	2,549	16.4	43	30	2,533	6.9	30	30	2,606	15.8	42
700	30	3,187	9.7	66	30	3,192	7.4	55	30	3,099	4.7	46	30	3,197	9.4	44	30	3,128	12.2	44	30	3,092	3.7	28	30	3,181	12.1	38
650	30	3,802	6.0	64	30	3,801	3.8	51	30	3,703	1.1	47	30	3,808	5.4	41	30	3,745	7.6	41	30	3,694	-0.3	30	30	3,801	7.9	40
600	30	4,451	2.3	63	30	4,445	-1.1	44	30	4,339	-2.5	44	30	4,457	1.7	34	30	4,398	2.4	44	30	4,327	-3.8	33	30	4,452	-3.4	44
550	30	5,154	-1.6	59	30	5,138	-3.9	42	30	5,027	-16.8	42	30	5,153	-2.5	30	30	5,092	-1.3	43	30	5,011	-8.2		30	5,154	-1.3	39
500	30	5,903	-6.6	55	28	5,988	-8.1	44	30	5,762	-11.4	39	30	5,903	-9.0		30	5,841	-8.6	39	29	5,744	-12.7		30	5,905	-6.1	37
450	30	6,732	-10.9	59	27	6,707	-12.8	38	30	6,568	-16.5		30	6,723	-12.8		30	6,658	-14.2	35	29	6,546	-17.8		30	6,728	-11.3	
400	30	7,620	-16.1	55	27	7,590	-18.5	35	29	7,490	-22.3	37	30	7,603	-19.2		30	7,574	-20.4	29	29	7,412	-24.3	35	30	7,614	-17.9	
350	30	8,610	-23.3	40	27	8,570	-25.6		29	8,407	-29.1		30	8,582	-26.3		30	8,507	-27.9		29	8,372	-31.4		29	8,596	-25.4	
300	30	9,718	-31.7		25	9,665	-34.1		29	9,499	-37.1		30	9,677	-34.6		29	9,593	-36.4		28	9,444	-39.4		29	9,694	-34.0	
250	29	10,977	-41.9		25	10,913	-44.1		28	10,725	-45.9		30	10,924	-44.4		29	10,832	-45.7		28	10,669	-47.7		29	10,944	-43.9	
200	29	12,448	-54.3		24	12,370	-55.9		28	12,174	-54.7		29	12,378	-55.4		28	12,285	-54.7		28	12,118	-54.7		29	12,404	-55.1	
175	29	13,289	-61.1		23	13,207	-61.6		27	13,017	-57.7		29	13,218	-60.6		28	13,131	-57.9		26	12,971	-54.6		29	13,245	-60.1	
150	28	14,239	-61.1		23	14,147	-67.8		26	13,984	-69.8		29	14,166	-64.9		26	14,091	-61.1		25	13,955	-55.0		29	14,196	-64.4	
125	20	15,304	-73.4		23	15,234	-70.8		26	15,117	-59.9		29	15,266	-68.7		26	15,212	-66.1		25	15,113	-57.2		28	15,297	-68.0	
100	13	16,605	-75.6		20	16,559	-71.0		25	16,507	-60.4		28	16,602	-68.4		24	16,573	-64.7		21	16,519	-59.2		29	16,631	-68.4	
80	10	17,899	-71.9		19	17,885	-68.1		19	17,895																		

	MERIDA, MEXICO (1011 MB.)				MIAMI, FLA. (1016 MB.)				NANTUCKET, MASS. (1011 MB.)				NASHVILLE, TENN. (994 MB.)				NORTH PLATTE, NEBR. (912 MB.)				OAKLAND, CALIF. (1014 MB.)				OKLAHOMA CITY, OKLA. (967 MB.)			
SURFACE	30	27	26.2	81	30	4	27.2	74	30	14	15.5	89	30	177	27.8	63	30	849	22.7	65	30	6	14.9	71	30	391	27.0	67
1,000	30	123	26.0	88	30	149	26.3	75	30	105	16.7	88	30	125			30	34			30	125	13.5	77	30	89		
950	30	580	24.3	78	30	602	22.8	78	30	546	18.3	66	30	587	27.4	53	30	491			30	562	12.1	71	30	551	27.8	57
900	30	1,049	21.9	77	30	1,070	20.1	77	30	1,008	15.4	66	30	1,059	23.7	56	30	966	24.4	57	30	1,010	12.5	58	30	1,025	24.9	57
850	30	1,544	19.0	73	30	1,562	17.2	66	30	1,491	12.8	61	30	1,556	19.6	61	30	1,467	22.9	50	30	1,490	12.0	38	30	1,525	21.6	58
800	30	2,063	16.1	68	30	2,077	14.0	66	30	1,998	10.1	55	30	2,075	15.9	66	30	1,992	19.7	47	30	1,995	9.6	34	30	2,048	18.7	55
750	30	2,611	13.1	64	30	2,623	10.8	57	30	2,540	7.7	50	30	2,622	12.9	48	30	2,549	16.4	43	30	2,533	6.9	30	30	2,606	15.8	42
700	30	3,187	9.7	66	30	3,192	7.4	55	30	3,099	4.7	46	30	3,197	9.4	44	30	3,128	12.2	44	30	3,092	3.7	28	30	3,181	12.1	38
650	30	3,802	6.0	64	30	3,801	3.8	51	30	3,703	1.1	47	30	3,808	5.4	41	30	3,745	7.6	41	30	3,694	-0.7	30	30	3,801	7.9	40
600	30	4,451	2.3	63	30	4,445	-1.4	44	30	4,339	-2.5	44	30	4,457	-1.7	34	30	4,398	2.4	44	30	4,327	-3.8	33	30	4,452	3.4	44
550	30	5,154	-1.6	59	30	5,138	-3.9	42	30	5,027	-6.8	42	30	5,153	-2.5	30	30	5,092	-3.1	43	30	5,011	-8.2		30	5,154	-1.3	39
500	30	5,903	-6.0	55	28	5,888	-8.1	44	30	5,762	-11.3	39	30	5,903	-7.0		30	5,841	-8.6	39	29	5,744	-12.7		30	5,905	-6.1	37
450	30	6,732	-10.9	55	27	6,707	-12.8	38	30	6,568	-16.5		30	6,723	-12.8		30	6,658	-14.2	35	29	6,546	-17.8		30	6,728	-11.3	
400	30	7,620	-16.1	55	27	7,590	-18.5	35	29	7,440	-22.3	37	30	7,603	-19.2		30	7,534	-20.4	29	29	7,412	-24.3	35	30	7,614	-17.9	
350	30	8,610	-23.3	40	27	8,570	-25.6		29	8,407	-29.1		30	8,582	-26.3		29	8,507	-27.9		29	8,372	-31.4		29	8,596	-25.4	
300	30	9,718	-31.7		25	9,665	-34.1		29	9,490	-37.1		30	9,677	-34.6		29	9,493	-36.4		28	9,444	-39.4		29	9,694	-34.0	
250	29	10,977	-41.9		25	10,913	-44.1		29	10,725	-45.9		30	10,924	-44.4		29	10,832	-45.7		28	10,669	-47.7		29	10,944	-43.9	
200	29	12,448	-54.3		24	12,370	-55.9		28	12,174	-54.7		29	12,378	-55.4		28	12,285	-54.7		28	12,118	-54.3		29	12,404	-55.1	
175	29	13,289	-61.1		23	13,207	-61.6		27	13,017	-57.7		29	13,218	-60.6		28	13,131	-57.9		26	12,971	-54.6		29	13,245	-60.1	
150	28	14,231	-67.6		23	14,147	-67.2		27	13,984	-59.8		29	14,166	-64.9		26	14,091	-61.9		25	13,955	-55.0		29	14,196	-64.4	
125	20	15,304	-73.4		23	15,234	-70.8		26	15,117	-59.9		29	15,266	-68.7		26	15,212	-66.1		25	15,113	-57.2		28	15,297	-68.0	
100	13	16,605	-75.6		20	16,559	-71.0		25	16,507	-60.4		28	16,602	-68.4		24	16,573	-64.7		21	16,519	-59.2		26	16,631	-69.4	
75	10	17,989	-71.9		19	17,885	-68.1		24	17,795	-58.2		24	17,902	-64.7		19	17,840	-60.8		17	17,781	-57.2		22	17,981	-74.4	
50	7	19,629	-64.4		19	19,638	-61.5		18	19,711	-56.0		23	19,729	-56.0		17	19,731	-58.8		15	19,719	-59.5		19	19,759	-59.7	
40	7	20,749	-60.3		18	20,771	-58.9		16	20,885	-53.5		22	20,872	-57.2		15	20,888	-56.2		13	20,883	-54.9		17	20,900	-56.9	
30					13	22,166	-55.7		12	22,364	-51.7		17	22,286	-54.4		11	22,320	-54.3		12	22,314	-52.6		13	22,337	-53.0	
20					10	24,006	-51.2		8	24,205	-49.4		13	24,130	-50.7		9	24,180	-51.7		9	24,171	-50.2		9	24,211	-49.4	
					5	26,678	-48.3										8	26,828	-48.0									



# RADIOSONDE DATA

Average monthly values

Table 20—Continued

JUNE 1952

Standard pressure surface (mb.)	SAN JUAN, P. R. (1016 MB.)				SANTA MARIA, CALIF. (1006 MB.)				SAULT STE. MARIE, MICH. ( 987 MB.)				SPOKANE, WASH. ( 928 MB.)				SWAN ISLAND, W. I. (1012 MB.)				TACUBAYA, MEXICO ( 774 MB.)				TAMPÁ, FLA. (1016 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	19	26.1	84	30	71	13.7	76	30	221	12.3	82	30	722	18.4	43	30	10	26.9	85	30	2,306	16.5	77	30	9	25.9	78
1,000	30	156	25.5	82	30	123	13.2	77	30	108			30	74			30	116	26.4	88	30	55			30	152	26.2	77
950	30	602	22.8	81	30	569	12.7	70	30	548	15.1	66	30	521			30	577	23.7	83	30	517			30	606	24.1	71
900	30	1,077	19.9	79	30	1,010	13.4	55	30	1,000	13.5	61	30	982	16.6		30	1,041	21.1	78	30	994			30	1,077	21.2	71
850	30	1,569	16.8	76	30	1,491	12.9	44	30	1,480	10.9	63	30	1,465	12.4	47	30	1,535	18.3	74	30	1,489			30	1,570	18.0	69
800	30	2,085	14.3	67	30	1,999	11.3	32	30	1,983	8.2	60	30	1,969	8.1	55	30	2,053	15.4	69	30	2,018			30	2,087	14.7	65
750	30	2,633	11.6	55	30	2,542	8.5	31	30	2,517	5.6	56	30	2,500	3.9	57	30	2,605	12.5	63	30	2,573	14.9	74	30	2,637	11.4	64
700	30	3,202	8.4	48	30	3,102	5.6	30	30	3,076	2.7	51	30	3,055	1	55	29	3,174	9.4	66	30	3,150	11.0	76	30	3,205	8.1	60
650	30	3,816	5.1	42	30	3,711	2.3		30	3,672	2	44	30	3,649	-3.7	54	29	3,791	5.7	61	30	3,770	6.6	81	30	3,822	4.4	59
600	30	4,460	1.4	40	30	4,347	-1.3		30	4,311	-3.2	42	30	4,272	-7.5	56	29	4,437	1.9	66	29	4,420	2.3	83	30	4,461	1.0	53
550	30	5,166	-2.7	41	30	5,039	-5.4		30	4,996	-7.2	42	30	4,948	-11.8	53	29	5,134	-2.2	63	29	5,123	-1.7	84	30	5,161	-3.0	48
500	30	5,905	-7.1	40	30	5,776	-10.0		30	5,731	-11.8	38	30	5,667	-16.4	51	29	5,887	-6.4	58	28	5,872	-5.7	77	30	5,904	-7.6	45
450	30	6,730	-12.6	46	30	6,587	-15.6		29	6,530	-17.5		30	6,454	-21.7	47	28	6,712	-11.0	57	28	6,700	-10.2	67	30	6,729	-12.6	41
400	30	7,608	-18.8	55	30	7,459	-22.1		29	7,402	-23.2		30	7,308	-28.0	49	28	7,600	-16.8	55	28	7,592	-15.7	59	30	7,606	-18.6	37
350	30	8,589	-25.8	47	30	8,426	-29.6		28	8,368	-30.4		30	8,249	-35.4	51	27	8,591	-23.4	48	27	8,586	-22.7	56	29	8,587	-25.4	37
300	30	9,486	-34.6	43	30	9,306	-38.2		27	9,448	-38.7		28	9,307	-43.1		26	9,700	-31.9	48	23	9,698	-31.2		29	9,686	-33.7	37
250	30	10,934	-44.9		30	10,736	-47.2		27	10,676	-47.5		28	10,514	-50.7		25	10,962	-42.0		18	10,966	-41.3		28	10,938	-43.8	
200	30	12,386	-57.2		30	12,185	-54.7		27	12,125	-54.1		28	11,952	-53.1		25	12,435	-54.1		16	12,440	-54.0		28	12,399	-55.5	
175	30	13,218	-63.6		30	13,034	-56.9		27	12,976	-55.6		28	12,815	-51.8		23	13,281	-60.9		13	13,283	-60.7		28	13,238	-61.2	
150	29	14,150	-69.7		30	14,005	-58.6		27	13,957	-56.7		28	13,812	-52.2		22	14,223	-68.1		8	14,210	-67.6		28	14,183	-66.3	
125	27	15,230	-71.7		30	15,144	-60.6		26	15,110	-58.7		27	14,987	-53.6		18	15,298	-74.0						27	15,273	-70.5	
100	22	16,547	-72.1		30	16,526	-62.6		25	16,511	-59.4		27	16,417	-54.5		9	16,598	-75.4						23	16,598	-70.7	
80	17	17,862	-68.3		30	17,904	-61.1		23	17,909	-54.1		24	17,849	-54.2										18	17,915	-67.4	
60	16	19,617	-61.2		29	19,701	-57.9		23	19,729	-55.4		23	19,687	-54.1										16	19,676	-61.2	
50	14	20,764	-57.7		29	20,856	-55.6		23	20,895	-53.7		18	20,853	-53.0										15	20,816	-58.0	
40	10	22,180	-53.6		27	22,281	-53.2		19	22,331	-52.1		14	22,301	-51.4										12	22,220	-55.4	
30	5	24,053	-47.7		22	24,148	-50.1		18	24,197	-50.4		10	24,172	-50.1										9	24,077	-51.0	
20									13	26,874	-46.1																	

Standard pressure surface (mb.)	TATOOSH ISLAND, WASH. (1013 MB.)				VERACRUZ, MEXICO (1009 MB.)				WASHINGTON, D. C. (1004 MB.)				HAVANA, CUBA (1010 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	31	10.9	89	25	12	27.4	83	30	88	22.3	71	31	49	22.8	85
1,000	30	135	10.3	88	25	93	26.8	88	30	124	23.0	69	31	135	23.2	82
950	30	564	8.7	75	25	551	23.8	82	30	577	22.7	59	31	589	21.2	73
900	30	1,007	7.1	66	25	1,019	20.8	88	30	1,042	20.3	58	31	1,050	18.7	67
850	30	1,475	5.0	62	25	1,513	18.4	79	30	1,533	17.0	58	31	1,540	16.1	61
800	30	1,968	2.6	57	25	2,032	15.7	78	30	2,048	13.9	55	31	2,053	14.0	50
750	30	2,494	0	52	25	2,587	12.8	77	30	2,596	10.9	50	31	2,604	12.1	36
700	30	3,037	-2.7	46	25	3,156	9.8	77	30	3,161	7.5	48	31	3,171	9.2	29
650	30	3,627	-5.7	41	22	3,777	6.5	71	30	3,771	4.2	39	31	3,785	5.5	28
600	30	4,245	-8.9	39	20	4,423	2.5	67	30	4,414	4	37	31	4,430	1.5	28
550	30	4,919	-12.8	37	20	5,119	-1.4	64	30	5,108	-4.0	37	31	5,127	-2.8	28
500	29	5,631	-17.2	39	19	5,877	-5.5	60	30	5,852	-8.6	33	31	5,875	-7.0	
450	29	6,416	-22.5	41	18	6,701	-9.8		30	6,670	-14.1	31	31	6,694	-12.4	23
400	29	7,268	-28.6	44	17	7,597	-14.9		30	7,544	-20.2		31	7,579	-19.0	
350	28	8,211	-35.5	41	16	8,594	-21.9		30	8,519	-27.2		31	8,559	-26.3	
300	28	9,265	-43.3		16	9,711	-30.3		29	9,607	-35.5		31	9,653	-35.0	
250	28	10,471	-49.9		15	10,983	-40.8		29	10,848	-45.1		31	10,899	-44.7	
200	28	11,919	-51.7		15	12,461	-53.6		28	12,308	-55.4		31	12,355	-55.2	
175	26	12,783	-50.8		15	13,306	-60.6		28	13,149	-59.4		31	13,196	-60.2	
150	23	13,777	-51.1		13	14,256	-68.2		28	14,106	-62.7		29	14,154	-65.5	
125	22	14,956	-51.7		8	15,333	-74.6		27	15,218	-65.0		27	15,250	-70.0	
100	19	16,402	-53.1		5	16,603	-77.6		27	16,577	-64.5		27	16,560	-75.5	
80	18	17,840	-53.8						22	17,934	-61.2		25	17,938	-77.9	
60	13	19,687	-53.8						21	19,734	-57.5		21	19,495	-73.3	
50	12	20,863	-53.4						21	20,891	-55.0		21	20,578	-66.9	
40	7	22,310	-52.1						20	22,328	-52.5		20	21,943	-61.9	
30									16	24,182	-48.9		17	23,749	-56.9	
20									7	26,822	-45.2		9	26,343	-52.8	
15													5	28,236	-49.6	

\* March 1952

Note: All observations scheduled at 0300, G.C.T. except at Mezatlan, Merida and Veracruz, where they are taken near 0200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and

expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.



# PILOT BALLOON DATA

Average monthly resultant winds

Table 21

JUNE 1952

Altitude (meters) m s l	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N.Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S.C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)			Ely, Nev. (1,910 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
SURFACE-----	30	172	6.9	30	230	2.4	30	7	1.7	30	248	0.9	30	327	3.2	30	122	6.6	30	269	3.7	29	285	1.7	30	219	2.7	30	284	2.5	30	212	1.9	30	187	6.1
500-----	30	172	8.7	---	---	---	---	---	---	28	237	1.8	30	318	3.1	19	148	7.0	30	269	6.5	27	264	4.4	30	244	3.1	29	272	3.5	---	---	---	---	---	
1,000-----	30	178	8.5	---	---	---	30	313	4.4	28	236	3.7	30	311	1.9	13	160	6.6	21	265	8.0	26	272	6.4	30	244	3.1	29	272	3.5	---	---	---	---	---	
1,500-----	30	182	7.6	30	230	3.4	30	214	2.2	25	246	5.6	30	246	1.0	19	281	10.0	21	270	6.5	28	308	3.7	23	283	6.6	30	211	2.9	30	187	6.9	---	---	
2,000-----	28	183	6.4	30	221	3.9	28	236	4.4	22	255	7.6	29	223	2.2	18	291	11.6	18	285	8.3	27	321	4.1	20	291	9.8	30	222	2.8	30	195	7.7	---	---	
2,500-----	26	191	6.1	30	226	4.2	27	241	7.4	19	262	9.6	26	217	3.8	17	298	12.5	14	293	11.6	24	323	4.2	19	293	11.6	30	232	2.5	30	202	7.6	---	---	
3,000-----	25	190	4.9	28	227	5.5	22	242	11.3	18	266	14.1	23	224	6.0	13	292	15.3	11	291	14.5	24	342	3.7	14	294	12.9	27	239	3.5	28	208	9.1	---	---	
4,000-----	23	205	4.4	25	235	6.9	16	242	14.4	16	260	16.7	21	233	8.3	11	297	16.9	10	287	16.3	21	351	4.6	12	293	13.3	27	243	3.7	21	217	11.1	---	---	
5,000-----	22	199	3.7	25	240	8.0	12	239	17.3	15	260	19.5	17	232	11.5	11	297	16.9	10	287	16.3	21	351	4.6	12	293	13.3	27	243	3.7	21	217	11.1	---	---	
6,000-----	12	254	3.1	22	232	9.6	11	239	16.8	11	230	18.6	11	230	18.6	11	297	16.9	10	287	16.3	21	351	4.6	12	293	13.3	27	243	3.7	21	217	11.1	---	---	
8,000-----	12	257	3.8	20	242	13.6	11	239	16.8	11	230	18.6	11	230	18.6	11	297	16.9	10	287	16.3	21	351	4.6	12	293	13.3	27	243	3.7	21	217	11.1	---	---	
10,000-----	12	257	3.8	20	242	13.6	11	239	16.8	11	230	18.6	11	230	18.6	11	297	16.9	10	287	16.3	21	351	4.6	12	293	13.3	27	243	3.7	21	217	11.1	---	---	
12,000-----	12	257	3.8	15	239	16.8	11	239	16.8	11	230	18.6	11	230	18.6	11	297	16.9	10	287	16.3	21	351	4.6	12	293	13.3	27	243	3.7	21	217	11.1	---	---	
14,000-----	12	257	3.8	11	234	12.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
16,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	

Altitude (meters) m s l	Grand Junction, Colo. (1,475 m.)			Greensboro, N.C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Little Rock, Ark. (88 m.)			Medford, Ore. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
SURFACE-----	30	251	3.4	30	245	1.3	29	261	2.5	30	124	3.2	29	214	1.8	30	206	4.8	29	318	1.6	30	115	4.4	30	191	1.8	30	276	2.2	30	263	5.2	30	180	8.2
500-----	30	251	3.4	30	251	2.1	---	---	---	30	147	3.0	29	217	3.3	30	212	5.0	29	315	1.9	30	112	5.1	30	209	2.5	30	276	3.1	30	272	5.2	30	182	8.5
1,000-----	---	---	---	30	270	2.5	28	257	3.0	30	193	1.4	28	235	5.6	30	216	4.8	29	308	2.1	30	104	3.8	30	219	1.3	30	270	3.4	27	277	3.3	30	185	9.2
1,500-----	30	250	3.3	30	289	4.5	29	259	3.4	29	257	1.9	25	245	8.3	29	233	4.8	27	292	2.5	26	84	3.2	26	217	6.2	26	266	3.9	26	276	2.8	29	197	10.0
2,000-----	30	249	3.9	25	304	6.1	29	245	5.2	29	289	2.6	24	261	10.6	27	236	5.6	24	240	2.6	27	71	3.0	23	115	6.2	26	262	4.1	26	247	1.9	28	197	9.5
2,500-----	29	229	4.6	20	310	7.9	28	245	7.3	27	314	2.7	22	271	11.7	24	228	5.6	20	311	3.3	27	62	2.2	21	101	1.1	23	273	3.9	26	202	1.6	27	208	8.7
3,000-----	29	212	5.3	19	313	9.2	19	243	8.6	24	331	3.3	21	274	11.8	20	216	5.3	18	318	3.6	27	61	1.8	15	45	5	21	287	3.7	26	204	1.9	25	214	8.3
4,000-----	28	209	8.1	15	309	8.0	12	252	12.0	22	346	3.3	18	280	15.4	13	233	6.5	17	236	3.9	24	58	1.5	18	306	4.2	26	225	4.1	22	223	7.5	30	180	8.2
5,000-----	27	215	12.0	10	331	6.5	11	249	17.4	21	1	2.8	13	290	17.1	12	234	6.4	15	265	4.4	18	35	2.1	14	305	4.7	23	235	6.2	20	235	6.8	30	180	8.2
6,000-----	23	228	16.2	10	331	6.5	11	249	17.4	20	10	3.1	13	290	17.1	12	234	6.4	15	265	4.4	18	35	2.1	14	306	4.6	22	255	7.4	18	248	6.8	30	180	8.2
8,000-----	16	231	18.8	10	331	6.5	11	249	17.4	20	10	3.1	13	290	17.1	12	234	6.4	15	265	4.4	18	35	2.1	14	305	4.7	23	235	6.2	20	235	6.8	30	180	8.2
10,000-----	12	240	23.7	10	331	6.5	11	249	17.4	20	10	3.1	13	290	17.1	12	234	6.4	15	265	4.4	18	35	2.1	14	305	4.7	23	235	6.2	20	235	6.8	30	180	8.2

Altitude (meters) m s l	Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			San Juan, P. R. (28 m.)			Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)			Spokane, Wash. (725 m.)			Washington, D. C. (24 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
SURFACE-----	30	158	3.1	30	190	1.6	28	142	1.3	27	250	1.2	30	208	1.6	30	145	4.7	23	259	3.5	31	125	6.0	30	254	1.5	28	241	3.3	30	207	3.5	28	260	1.4
500-----	30	170	3.9	30	207	2.0	---	---	---	27	246	1.7	30	223	2.3	30	149	6.2	21	270	2.5	31	103	8.9	30	280	2.9	28	244	3.1	---	---	---	---	---	
1,000-----	28	179	5.9	30	205	2.6	28	139	1.3	26	252	2.8	30	227	3.5	30	152	7.0	19	270	2.5	31	103	8.9	30	280	2.9	28	244	3.1	---	---	---	---	---	
1,500-----	28	197	7.0	30	208	3.3	27	171	1.9	21	279	5.1	29	239	5.5	30	161	7.2	15	236	2.4	27	121	7.2	28	277	5.3	23	258	2.5	28	220	4.6	26	296	7.0
2,000-----	25	211	9.1	29	203	5.5	25	200	3.0	20	288	8.1	29	249	6.7	30	165	7.4	15	234	3.9	22	120	6.5	27	275	8.2	21	254	3.0	26	226	4.7	23	299	9.9
2,500-----	24	231	10.2	29	207	7.5	25	233	5.3	17	288	11.7	24	256	8.4	28	171	7.0	15	237	5.8	19	114	6.3	25	279	10.9	16	239	3.4	22	224	4.8	23	305	12.6
3,000-----	22	239	10.2	29	210	10.0	23	246	7.4	16	286	13.9	24	263	9.0	26	166	6.3	14	237	7.9	17	114	6.3	21	287	11.4	13	217	3.2	22	235	5.1	23	305	13.2
4,000-----	20	249	13.0	29	219	11.3	23	255	10.5	15	281	19.0	21	273	8.0	22	177	3.3	13	226	11.2	11	93	5.6	19	283	15.2	13	237	3.5	14	250	5.8	20	301	13.0
5,000-----	19	259	13.3	28	220	11.0	21	256	13.5	10	274	17.4	17	278	8.0	18	154	3.4	13	227	13.4	13	226	15.4	14	278	18.8	---	---	---	---	---	---	---	---	



## Average monthly resultant winds

Table 22

JUNE 1952

	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Burwood, La. (3 m.)			Caribou, Me. (191 m.)			Charleston, S.C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N.C. (275 m.)			Hatteras, N.C. (3 m.)			Internat'l. Falls, Minn. (358 m.)		
Altitude (meters) m.s.l.	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations		
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed				
Surface-----	30	158	2.7	30	172	6.3	30	76	1.9	30	125	4.8	30	199	1.4	30	263	1.7	30	204	2.2	30	115	1.3	30	278	1.2	30	220	1.2	30	200	2.7	30	170	0.5
500-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,500-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,000-----	30	223	4.0	30	178	8.1	30	243	3.7	30	145	5.9	29	88	3.6	29	288	5.9	30	318	3.6	30	225	7.4	30	245	4.1	30	304	5.4	30	301	5.0	29	280	5.9
2,500-----	30	230	4.2	30	183	5.2	30	252	6.5	30	140	5.7	29	91	3.8	29	287	7.5	29	334	3.2	30	243	6.5	30	230	5.1	30	316	6.4	30	315	4.9	28	276	8.1
3,000-----	30	234	5.0	30	194	3.5	29	238	9.0	29	136	5.6	29	94	3.6	29	284	7.8	29	344	3.3	30	257	6.1	30	216	6.7	30	320	6.6	30	317	5.2	27	282	9.5
4,000-----	29	246	4.6	29	238	1.4	27	268	12.8	28	126	4.7	29	92	3.4	29	284	9.1	28	342	3.6	29	253	5.7	30	208	9.1	30	328	7.3	30	316	5.9	26	278	13.1
5,000-----	29	255	5.0	27	248	1.9	26	269	16.5	27	110	4.0	29	77	3.2	29	289	10.7	27	344	3.5	28	268	6.2	30	213	11.3	30	325	7.6	30	325	7.5	26	282	16.3
6,000-----	29	246	6.5	27	204	8	24	271	17.1	27	121	3.3	28	54	2.5	29	285	13.2	27	331	3.8	28	272	7.7	28	223	12.5	29	325	8.0	28	313	8.0	22	286	19.1
8,000-----	28	242	9.8	24	222	2.0	19	271	23.8	27	86	9	26	6	1.5	24	282	18.4	24	335	4.4	27	265	10.6	24	231	16.8	28	315	9.4	26	316	10.4	19	282	23.8
10,000-----	25	245	15.5	25	286	4.8	12	266	28.0	25	195	2.1	25	308	3.1	18	269	21.1	22	317	5.9	24	262	13.9	18	238	17.2	25	305	12.2	23	316	10.5	11	266	30.7
12,000-----	20	238	16.8	22	262	7.1				22	230	4.1	24	282	1.7	15	265	24.6								22	231	21.0	25	298	11.9	19	331	12.8		
14,000-----	15	252	10.3	21	232	6.6				20	226	1.8	22	294	2.0											25	314	8.9	16	319	10.0					
16,000-----	13	220	6.7	18	211	4.2				15	85	4.7	19	38	2.9											21	316	7.6	14	330	4.4					
18,000-----	11	192	2.8	13	87	5.6				11	90	9.6	16	47	6.0											17	25	2.8	11	66	5.0					
20,000-----	10	90	5.3	10	83	9.6							11	80	8.7											13	35	5.7								
22,000-----				10	83	8.9																				13	85	9.0								

	Little Rock, Ark. (80 m.)			Medford, Ore. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (98 <sup>m</sup> m.)			San Antonio, Tex. (242 m.)			San Juan, P. R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)				
Altitude (meters) m.s.l.	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations				
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed						
Surface-----	30	190	2.8	30	329	2.9	30	112	1.4	29	202	2.4	30	213	0.8	30	266	4.6	30	152	5.7	30	34	1.2	30	132	5.8	29	141	3.5	30	153	0.6	30	278	4.2		
500-----	30	215	6.4	30	323	3.5	30	128	4.5	29	273	5.9	30	238	3.2	30	268	5.3	21	158	7.1	--	---	---	---	30	144	8.7	29	107	7.7	29	219	1.8	30	318	3.5	
1,000-----	30	219	6.2	30	322	3.9	30	123	3.9	29	284	6.8	30	234	4.0	30	271	5.7	21	180	10.7	30	36	1.2	30	150	8.6	29	107	8.6	29	255	2.7	30	327	3.5		
1,500-----	30	223	5.1	30	307	2.9	30	117	2.9	28	289	8.9	30	258	4.0	30	263	3.7	23	198	10.2	30	172	1.8	30	161	6.9	29	106	8.0	29	289	4.6	30	3	1.7		
2,000-----	30	222	4.5	30	269	2.7	30	100	2.2	28	289	7.4	30	270	3.7	30	256	3.1	24	210	9.0	30	206	4.1	30	161	6.5	29	104	7.9	29	277	7.8	30	24	1.0		
2,500-----	30	213	3.5	30	247	3.7	30	82	1.7	28	289	8.9	30	286	3.4	30	245	2.5	28	218	7.2	30	219	5.5	30	155	6.5	29	104	7.0	29	285	9.3	30	276	1.2		
3,000-----	30	221	2.1	30	242	4.0	30	74	1.7	28	297	10.1	30	298	3.4	29	234	2.8	29	220	5.4	30	238	8.0	30	153	5.4	29	101	6.2	29	282	11.4	30	261	2.6		
4,000-----	30	283	1.3	30	242	4.2	30	82	2.6	26	399	11.6	30	301	4.1	29	240	3.8	30	235	3.1	30	252	12.5	30	125	3.1	29	107	5.8	30	281	14.8	30	248	6.1		
5,000-----	28	289	1.6	30	241	5.0	30	64	3.1	26	298	14.9	29	308	5.5	29	244	6.5	30	233	3.3	30	250	15.6	30	129	2.0	29	121	4.2	27	278	18.7	30	240	9.2		
6,000-----	28	300	6.3	30	241	6.6	27	44	3.9	25	296	17.6	29	321	5.8	27	258	6.4	30	243	3.9	30	248	18.4	30	103	1.4	29	143	3.7	22	276	19.8	25	244	9.8		
8,000-----	28	291	3.9	29	249	7.3	27	19	4.5	20	297	17.5	29	299	8.2	20	255	10.8	29	234	6.3	28	247	22.9	30	75	2.1	29	222	3.5	21	270	24.9	21	252	14.5		
10,000-----	27	290	4.8	27	256	9.7	24	3	6.1	15	303	17.3	29	294	9.5	12	269	7.6	29	261	6.2	22	250	25.9	30	299	9.9	29	258	5.3	16	275	30.0	15	253	13.6		
12,000-----	26	289	6.9	21	255	11.1	24	350	7.7	10	280	12.0	27	285	11.4											28	227	2.8	29	262	7.8					11	239	11.5
14,000-----	23	288	5.2	14	257	10.1	21	6	6.7				22	290	8.4											28	319	2.0	28	271	8.1					10	230	12.0
16,000-----	15	310	4.2	11	236	8.9	16	43	8.7				17	322	8.0											21	67	1.1	22	266	2.3					10	209	7.8
18,000-----				10	181	2.9	14	75	11.6				11	30	3.0											15	81	6.3	16	7.7					10	123	4.0	
20,000-----				14	78	12.6							11	52	5.6											13	82	11.8	14	83	17.1					12	84	10.1
22,000-----				10	81	18.4																				12	85	12.0						12	91	11.6		
24,000-----																																				11	73	11.2

	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Swan Island, W. I. (10 m.)			Tatoosh Island, Wash. (33 m.)			Washington, D.C. (88 m.)		
Altitude (meters) m.s.l.	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations		
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed	
Surface-----	29	291	0.9	30	208	2.2	29	93	5.2	30	225	2.7	30	242	0.1
500-----	29	294	2.6	---	---	---	29	100	10.6	30	269	4.7	30	283	3.9
1,000-----	28	278	3.5	30	229	3.9	29	109	11.7	30	259	4.1	30	294	6.2
1,500-----	26	265	5.7	30	243	3.7	29	112	11.2	30	252	3.4	30	297	7.1
2,000-----	25	278	7.4	29	244	4.6	28	112	10.5	30	256	3.8	30	302	7.8
2,500-----	24	279	8.6	28	236	4.5	25	106	9.0	30	257	4.6	30	303	7.8
3,000-----	22	287	9.7	28	235	5.4	24	108	8.5	30	252	5.4	29	301	7.6
4,000-----	20	289	12.1	28	228	7.7	20	103	6.8	30	262	6.1	29	304	9.3
6,000-----	18	284	16.1	29	231	8.6	15	104	5.6	29	257	8.0	29	306	10.4
8,000-----	16	289	17.5	23	214	7.3	15	97	3.7						

These free-air resultant winds are based on rawin observations made near 0300 speeds in meters per second. G.C.T.: directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°);

Note: Resultants prepared from raw data at high altitudes are biased toward lower wind speeds. Values appearing in this table should therefore be used with caution when the number of observations missing is greater than three. See note following table 3 in the January 1950 issue of the CLIMATOLOGICAL DATA, National Summary.



# SOLAR RADIATION DATA

Table 30--Solar radiation intensities, tabulated in langleys per minute.

JUNE 1952

Date	Sun's zenith distance								Vapor pressure, E.S.T.		
	A. M.				0.0°	P. M.				7:30 a. m.	1:30 p. m.
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°		
TABLE MOUNTAIN, CALIF.											
Air mass											
	3.76	3.01	2.26	1.51	*0.75	1.51	2.44	3.26	4.08		
June										Mb. Mb.	
5----				1.31							
6----				1.40							
8----	1.10	1.19	1.30	1.40							
10----	1.11	1.20	1.30	1.43							
11----	1.10	1.19	1.30	1.44							
12----				1.44							
13----				1.42							
14----				1.45							
15----				1.42							
16----				1.42							
17----	1.06	1.14	1.25	1.35							
18----	1.12	1.19	1.30	1.44							
19----	1.12	1.21	1.30	1.43							
20----	1.08	1.17	1.29	1.43							
21----	1.07	1.15	1.26	1.39							
22----				1.38							
25----				1.45							
26----				1.39							
27----				1.37							
28----				1.37							
29----				1.38							
30----				1.45							
Averages	1.10	1.18	1.29	1.41	----	----	----	----	----		
Departures	+0.1	.00	+0.1	+0.1	----	----	----	----	----		
LINCOLN, NEBR.											
Air mass											
	4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
June										Mb. Mb.	
5----				1.24	0.97	0.77	0.67	0.56			
13----				1.18	.90	.75	.60	.50			
14----				1.16	.86	.67	.50	.39			
16----				1.28	1.12	.94	.82	.69			
17----				1.26	1.03	.88	.79	.71			
23----				1.20	.86						
25----				1.11	.94	.77	.67	.56			
27----				1.22	.99	.82	.64	.52			
Averages				1.21	.96	.80	.67	.56			
Departures				-.13	-.12	-.09	-.10	-.08			
ALBUQUERQUE, N.M.											
Air mass											
	4.08	3.26	2.44	1.63	*0.815	1.63	2.44	3.26	4.08		
June										Mb. Mb.	
5----											
13----											
14----											
16----											
17----											
23----											
25----											
27----											
Averages											
Departures											
NO DATA DURING JUNE 1952											
* Extrapolated											
MADISON, WIS.											
Air mass											
	4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		
June										Mb. Mb.	
3----	0.71	0.81	0.90	1.08	1.30						
6----	.61	.73	.84	1.02	1.27						
9----	.41	.47	.64	.90	1.28						
10----	.74	.80	.94	1.08	1.38						
17----	.63	.75	.88	1.07	1.30						
18----	.60	.70									
19----	.76	.86	.96	1.15	1.35						
28----	.39	.49	.64	.74							
Averages	.61	.70	.83	1.01	1.31						
Departures	-.01	-.05	-.05	-.02	.00						
BLUE HILL, MASS.											
Air mass											
	4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
June										Mb. Mb.	
3----	0.74	0.82	0.95	1.12		1.04	0.71	0.62			
4----		.57	.68	.96							
7----	.90	.97	1.09								
12----	.82	.91	1.01	1.20		1.20	1.03	.86	.74		
14----	.82	.93	1.04	1.19							
16----	.92	1.02	1.13	1.27							
17----		.92	1.02	1.19		1.11	.95	.81	.72		
20----						1.24	1.14				
23----	.85	.95	1.01	1.20							
30----						1.25	1.13	1.01	.90		
Averages	.84	.89	.99	1.16	----	1.17	.99	.83	.79		
Departures	+.18	+.13	+.10	+.11	----	+.12	+.13	+.12	+.19		
BOSTON, MASS.											
Air mass											
	4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96		
June										Mb. Mb.	
5----											
13----											
14----											
16----											
17----											
23----											
25----											
27----											
Averages											
Departures											
NO DATA DURING JUNE 1952											
TACUBAYA, D. F., MEXICO											
Air mass											
	3.83	3.07	2.31	1.53	*0.77	1.53	2.31	3.07	3.83		
June										Mb. Mb.	
5----											
13----											
14----											
16----											
17----											
23----											
25----											
27----											
Averages											
Departures											
NO DATA DURING JUNE 1952											

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface.  
An explanation of Tables 30 and 31 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given

in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.



# SOLAR RADIATION DATA

JUNE 1952

Table 31a.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

Date-----	3	4	5	6	7	8	9	Aver-	10	11	12	13	14	15	16	Aver-	17	18	19	20	21	22	23	Aver-
Langleys-----	285	271	180	267	234	280	164	age	258	193	164	255	257	248	261	age	178	264	188	267	218	162	264	age
Date-----	24	25	26	27	28	29	30	1	Aver-															
Langleys-----	236	222	247	274	263	110	266	262	235															

Table 31b.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during the month

Date-----	3	4	5	6	7	8	9	Aver-	10	11	12	13	14	15	16	Aver-	17	18	19	20	21	22	23	Aver-
Langleys-----	170	170	150	158	-	209	138	age	157	123	151	174	163	141	148	age	130	150	185	173	113	132	174	age
Date-----	24	25	26	27	28	29	30	1	Aver-															
Langleys-----	149	158	148	171	161	90	158	182	152															

Table 31c.-Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

Date-----	3	4	5	6	7	8	9	Aver-	10	11	12	13	14	15	16	Aver-	17	18	19	20	21	22	23	Aver-
Langleys-----	114	135	251	179	199	179	227	age	202	244	248	187	180	259	136	age	238	95	229	84	305	274	142	age
Date-----	24	25	26	27	28	29	30	1	Aver-															
Langleys-----	211	283	176	196	206	157	128	79	179															

Note.-Langley is the unit used to denote one gram calorie per square centimeter

## CORRECTIONS

MONTH: January 1951

Page 1, first column, line 15: "1.81" should read, "2.18"

Page 1, first column, line 16: "0.44" should read, "0.08"

Page 1, second column, second paragraph, line 3: "seasonably," should read, "unseasonably."

MONTH: March 1951

Page 57, first column, line 3: "0.2° lower," should read, "2.7° higher."

Page 57, first column, line 5: "warmer," should read, "lower."

MONTH: April 1951

Page 85, first column, second paragraph, line 4: "below," should read, "above."

Page 85, first column, second paragraph, lines 15 and 16: "positive," should read, "minus."

Page 85, first column, second paragraph, lines 16 and 17: "negative," should read, "positive."

MONTH: June 1951

Page 149, first column, second paragraph, lines 7 and 8: "averages exceeded the normals by more than 2°," should read, "temperature deficiencies exceeded 2°."

MONTH: September 1951

Page 282, first column, line 2: "hailstone," should read, "hailstorm."

Page 282, first column, second paragraph, line 7: "LaCoute," should read, "LaConte."



Table 33 - Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyes.

JUNE 1952

	Aklavik, MacKenzie	Albuquerque, N. Mex.	Apalachicola, Fla.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Blue Hill, Mass.	Boston, Mass.	Brownsville, Tex.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Columbus, Ohio	Davis, Calif.	E. Lansing, Mich.	R. Wareham, Mass.	Edmonton, Alberta	El Paso, Tex.	Fairbanks, Alaska	Fort Worth, Tex.	Fresno, Calif.	Grand Junction, Colo.	Grand Lake, Colo.	Greensboro, N. C.	Griffin, Ga.	Hatteras, N. C.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Keflavik, Iceland	Lake Charles, La.	Lander, Wyo.	Las Vegas, Nev.	Los Angeles, Calif. (WBAS)				
1952																																						
June 3-----	208	733	704	---	492	501	714	735	558	386	474	740	615	741	316	700	658	748	535	791	762	213	(275)	---	652	828	509	730	734	734	635	503	507	621				
June 4-----	121	726	688	---	704	339	669	666	565	(699)	687	692	695	727	590	653	712	793	(636)	730	746	779	548	---	725	781	700	729	187	726	824	733	727					
June 5-----	400	780	713	482	---	601	309	437	747	534	457	649	483	624	408	408	795	790	(402)	763	628	790	737	---	585	464	521	755	187	726	754	699	157					
June 6-----	323	781	714	716	---	297	614	642	536	740	689	724	661	568	624	408	795	790	(402)	763	628	790	737	---	585	464	521	755	187	726	754	699	157					
June 7-----	598	785	754	---	---	300	491	553	447	675	781	700	721	642	585	408	795	790	(402)	763	628	790	737	---	585	464	521	755	187	726	754	699	157					
June 8-----	695	801	676	---	---	234	750	730	685	728	595	622	619	709	561	716	700	792	(546)	775	746	824	836	---	733	(796)	623	769	960	672	737	777	676	---				
June 9-----	663	782	712	396	---	687	325	337	536	629	545	642	440	576	653	402	777	782	(315)	729	602	832	868	---	628	753	(796)	623	769	977	672	752	768	813	---			
Averages-----	430	770	680	---	---	423	553	586	556	639	604	695	605	649	547	581	624	783	(582)	746	702	715	(697)	---	636	(728)	566	754	588	593	742	714	582	---				
Departures-----	-125	---	-460	---	---	4	+21	+79	-84	+65	+26	+97	---	-16	+77	+49	+84	+30	+47	+112	+11	---	+46	---	+36	+55	-4	---	+52	+19	-19	---	---					
June 10-----	787	785	666	582	---	(256)	651	637	490	529	764	684	789	765	669	594	232	722	(785)	677	802	830	833	521	661	700	736	786	701	690	883	789	745	---				
June 11-----	750	783	662	492	---	237	466	399	515	692	705	683	478	759	548	526	244	628	(402)	461	794	830	855	536	654	655	787	564	798	251	736	865	771	666	---			
June 12-----	443	782	641	626	---	130	301	390	749	699	256	751	552	780	301	345	107	664	(486)	748	838	830	855	536	654	655	787	564	798	251	736	865	771	666	---			
June 13-----	742	776	676	444	---	246	755	755	624	723	572	736	683	780	402	683	356	758	(193)	808	804	832	848	536	654	655	787	564	798	251	736	865	771	666	---			
June 14-----	786	767	487	674	---	724	703	692	757	(588)	527	170	333	744	517	683	409	760	(646)	811	829	834	788	441	689	799	485	819	462	761	874	783	797	---				
June 15-----	801	687	422	---	---	765	556	569	780	506	693	766	659	793	501	521	209	759	(326)	785	803	835	875	572	703	712	651	811	759	777	892	790	806	---				
June 16-----	758	819	(511)	487	---	779	771	747	757	550	622	(715)	692	779	475	720	787	781	(598)	793	791	860	856	564	654	777	694	823	365	762	883	806	791	---				
Averages-----	725	771	(581)	551	---	(448)	600	599	668	(627)	591	(644)	598	771	487	577	369	725	(491)	726	807	839	814	552	658	749	572	807	589	752	880	790	774	---				
Departures-----	+191	---	-14	-14	---	+30	+100	+102	-3	+35	+12	+78	---	-47	+54	+60	-137	-30	-21	+74	+92	---	+118	---	+55	+72	+22	+44	+85	+146	+119	+40	---	---				
June 17-----	672	760	481	---	---	733	335	312	751	759	590	798	595	753	671	246	517	764	(502)	775	765	847	878	408	706	771	649	791	558	709	824	792	704	---				
June 18-----	748	580	682	---	---	569	750	752	732	726	770	666	754	761	645	659	675	763	(418)	793	762	672	678	726	708	723	726	780	826	664	831	790	426	---				
June 19-----	784	527	637	498	---	728	439	480	717	488	666	644	608	730	687	477	650	760	(518)	793	769	770	802	704	586	813	689	811	546	553	866	796	733	---				
June 20-----	792	599	718	505	---	768	788	792	647	597	557	497	693	631	233	731	678	722	(648)	788	770	807	819	544	597	585	717	322	764	706	664	763	705	---				
June 21-----	774	813	732	464	---	729	788	586	105	495	352	356	382	725	249	(512)	572	777	(683)	778	770	807	819	544	597	390	268	786	227	717	746	749	519	---				
June 22-----	761	813	717	488	---	670	294	314	646	693	171	407	432	613	238	235	342	792	(760)	680	765	798	819	544	597	390	268	786	227	717	746	749	519	---				
June 23-----	601	807	640	698	---	516	755	705	719	723	(563)	747	531	600	362	686	487	788	(635)	746	549	559	526	619	706	(652)	692	413	261	736	411	420	459	---				
Averages-----	733	728	661	531	---	655	551	563	617	640	(524)	588	571	695	441	(507)	560	767	(598)	765	739	752	749	618	607	(683)	548	733	492	682	737	725	591	---				
Departures-----	+170	---	+85	-38	---	+216	+9	+77	-52	+23	-45	+47	---	-5	-25	-9	+80	+28	+68	+97	+18	---	+119	+55	-10	+50	+6	-37	-23	+64	+3	-28	---					
June 24-----	506	794	539	744	---	353	556	573	487	654	663	752	707	652	545	526	574	751	(433)	790	798	263	627	636	704	(642)	730	794	655	766	205	749	438	---				
June 25-----	426	789	632	---	---	381	490	513	830	731	886	749	741	676	560	489	655	412	(733)	785	803	703	566	611	666	772	720	776	676	807	617	755	461	---				
June 26-----	449	790	732	705	---	560	627	628	832	(735)	558	705	728	714	438	617	689	709	635	794	730	678	674	659	713	778	691	661	619	775	296	760	643	---				
June 27-----	580	732	682	---	---	155	696	710	695	(628)	559	717	619	332	471	660	798	(711)	(731)	691	723	412	474	679	703	765	505	787	734	696	658	753	674	---				
June 28-----	361	799	734	---	---	235	618	633	315	583	560	725	679	226	560	509	303	636	(550)	782	308	819	833	853	668	647	660	806	777	429	863	771	126	---				
June 29-----	135	751	728	682	---	347	179	164	554	639	483	731	693	770	461	284	579	703	499	750	781	751	709	379	691	598	620	328	614	650	861	786	714	---				
June 30-----	319	638	680	698	---	337	665	726	800	701	572	688	624	771	287	463	352	685	244	683	802	810	744	392	707	539	682	802	816	317	892	777	778	---				
July 1-----	341	768	554	440	804	443	739	748	821	392	709	701	557	761	554	704	662	721	(276)	511	800	750	831	733	386	785	641	788	828	---	880	766	731	---				
Averages-----	390	758	660	654	---	352	571	587	667	(633)	611	721	669	613	484	532	577	666	(512)	723	718	648	682	593	655	(691)	656	777	679	634	659	765	571	---				
Departures-----	-121	---	+131	+60	---	-62	+37	+95	-11	+42	+27	+191	---	-98	-6	+38	+94	-57	+43	+80	-1	-106	+6	+15	+39	+135	+83	-9	+159	+30	-21	+33	---	---				
Accumulated Departures January 1 to July 1, 1952																																						
	+294	---	+1071	-1890	---	---	-3234	+2576	-361	-518	---	-4410	---	-1841	-1868	---	-3332	-3472	---	-7805	+2247	---	---	+413	---	-539	---	-1218	-2408	-4718	-1799	+840	+182	---				

Accumulated Departures January 1 to July 1, 1952

+294	---	+1071	-1890	---	---	---	-3234	+2576	-361	-518	---	+4410	---	-1841	+1869	---	+3332	-3472	---	+7805	+2247	---	---	+413	---	-539	---	---	-1218	-2408	+4718	+1729	+840	+182	---
------	-----	-------	-------	-----	-----	-----	-------	-------	------	------	-----	-------	-----	-------	-------	-----	-------	-------	-----	-------	-------	-----	-----	------	-----	------	-----	-----	-------	-------	-------	-------	------	------	-----

Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.



# SOLAR RADIATION DATA

Table 33—Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleye. — Continued

JUNE 1952

1952	Lynn, Mass.	Madison, Wis.	Medford, Ore.	Miami, Fla.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Head, Wash.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Ottawa, Ontario	Phoenix, Ariz.	Rapid City, S. Dak.	Riverside, Calif.	Salt Lake City, Utah	San Antonio, Tex.	Santa Maria, Calif.	Sault Ste. Marie, Mich.	Saville, N. Y.	Schenectady, N. Y.	Seabrook, N. J.	Seattle, Wash. (U. of Wash.)	Seattle, Wash. (WBAS)	Spokane, Wash.	State College, Pa.	Stillwater, Okla.	Swan Island, W. I.	Tampa, Fla.	Toronto, Ontario	Upton, N. Y.	Wake Island, Pacific Area	Washington, D. C. (WBSC)	Washington, D. C. (Amer. U.)	Winnipeg, Manitoba	
June 3	722	605	763	578	683	46	620	190	614	770	543	589	316	494	365	590	660	272	766	560	735	223	316	638	670	465	743	331	747	---	746	698	895		
June 4	694	236	797	785	740	710	597	236	629	629	506	784	618	706	716	424	730	268	690	474	637	235	316	649	469	489	738	362	(708)	---	641	584	617		
June 5	423	671	595	630	355	511	597	296	666	629	730	742	690	416	719	450	215	748	333	474	419	319	285	597	469	458	738	362	(708)	---	641	584	617		
June 6	683	745	540	605	666	630	597	383	747	576	522	778	627	428	659	471	281	789	660	419	319	285	597	469	458	738	362	(708)	---	641	584	617			
June 7	683	745	540	605	666	630	597	383	747	576	522	778	627	428	659	471	281	789	660	419	319	285	597	469	458	738	362	(708)	---	641	584	617			
June 8	683	745	540	605	666	630	597	383	747	576	522	778	627	428	659	471	281	789	660	419	319	285	597	469	458	738	362	(708)	---	641	584	617			
June 9	729	447	821	404	737	773	663	732	724	819	580	815	500	734	834	629	579	374	790	555	742	750	779	759	720	---	609	572	785	---	711	736	405		
June 9	417	703	(547)	580	654	405	424	447	623	814	580	815	500	734	834	629	579	374	790	555	742	750	779	759	720	---	609	572	785	---	711	736	405		
Averages	617	588	(680)	591	690	608	498	434	666	715	634	760	585	585	695	534	457	569	630	425	618	479	(551)	637	590	536	---	599	542	(661)	---	674	624	605	
Departures	+76	+67	-19	+14	+130	+52	+3	-75	+123	+106	+84	+16	-35	+32	+119	-39	-195	+18	-22	+74	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
June 10	609	779	(433)	688	508	662	542	703	351	813	451	789	569	758	783	779	317	564	464	506	477	790	540	594	---	---	---	---	---	---	---	---	---	---	
June 11	562	282	620	587	536	537	682	335	452	690	835	784	694	753	776	724	812	783	729	581	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
June 12	440	85	(581)	730	588	491	663	733	452	690	835	784	694	753	776	724	812	783	729	581	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
June 13	798	165	(431)	597	507	743	738	738	318	801	783	793	686	747	812	736	799	393	781	581	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
June 14	705	585	(349)	756	718	733	623	738	389	555	603	688	773	399	763	792	645	800	524	766	454	---	---	---	---	---	---	---	---	---	---	---	---	---	---
June 15	582	460	826	396	696	598	645	285	518	739	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
June 16	764	460	841	734	729	783	479	200	589	632	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Averages	637	402	(583)	641	612	634	625	484	492	753	614	793	628	751	790	607	787	505	686	469	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Departures	+74	-99	-79	+13	+85	+113	+143	+27	-52	+96	+64	+40	+20	+148	+115	+8	+140	-97	+121	+28	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
June 17	301	774	830	758	754	293	499	724	726	780	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
June 18	693	686	476	693	750	734	733	412	699	807	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
June 19	781	738	828	625	683	561	450	597	682	722	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
June 20	751	64	366	762	727	---	763	473	671	801	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
June 21	582	152	---	705	599	625	85	454	582	713	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
June 22	364	503	---	521	656	233	77	741	640	766	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
June 23	742	121	---	627	750	739	89	769	724	815	470	784	598	680	387	643	707	446	232	379	109	750	739	765	---	---	---	---	---	---	---	---	---		
Averages	559	437	625	670	703	531	385	596	675	772	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Departures	+11	-89	-70	+37	+140	-25	-95	+80	+103	+93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
June 24	656	580	---	726	758	703	656	497	719	802	393	777	272	409	531	643	797	(457)	685	476	439	659	720	524	---	---	---	---	---	---	---	---	---		
June 25	590	668	---	573	747	650	644	375	728	785	474	778	480	561	386	687	742	555	689	474	574	465	(399)	487	---	---	---	---	---	---	---	---	---		
June 26	668	450	---	704	738	689	660	288	690	789	389	789	82	506	209	605	735	678	674	421	704	433	486	688	---	---	---	---	---	---	---	---	---		
June 27	749	265	---	470	654	621	478	286	708	815	734	789	187	681	590	398	600	719	678	455	482	181	236	461	---	---	---	---	---	---	---	---	---		
June 28	659	688	---	707	720	476	309	469	538	807	735	782	695	589	797	687	187	236	275	500	433	486	688	---	---	---	---	---	---	---	---	---	---		
June 29	113	726	---	699	641	195	385	265	677	801	248	778	675	716	777	623	794	250	384	67	566	105	135	334	---	---	---	---	---	---	---	---	---		
June 30	745	187	---	714	674	715	670	604	690	734	754	790	608	756	790	317	778	816	708	555	475	369	531	619	---	---	---	---	---	---	---	---	---		
July 1	780	545	---	726	581	779	716	805	571	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Averages	620	514	---	665	689	604	565	449	665	792	560	783	443	621	605	560	678	560	612	438	557	388	(549)	513	536	---	---	---	---	---	---	---	---	---	
Departures	+70	-34	---	+54	+132	+61	+73	-55	+78	+140	+3	+66	-181	+21	-34	-82	-10	+13	+91	-25	+32	-166	---	-136	---	---	---	---	---	---	---	---	---	---	

Accumulated Departures January 1 to July 1, 1852

+1617	-1085	-1176	+630	+3409	+1407	+868	-161	+1764	+3045	+4057	+1092	-1652	+2121	+3227	-455	+56	+399	+1337	-644	-924	-1799	---	---	-1176	+322	-1638	-119	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note.--Langley is the unit used to denote one gram calorie per square centimeter.



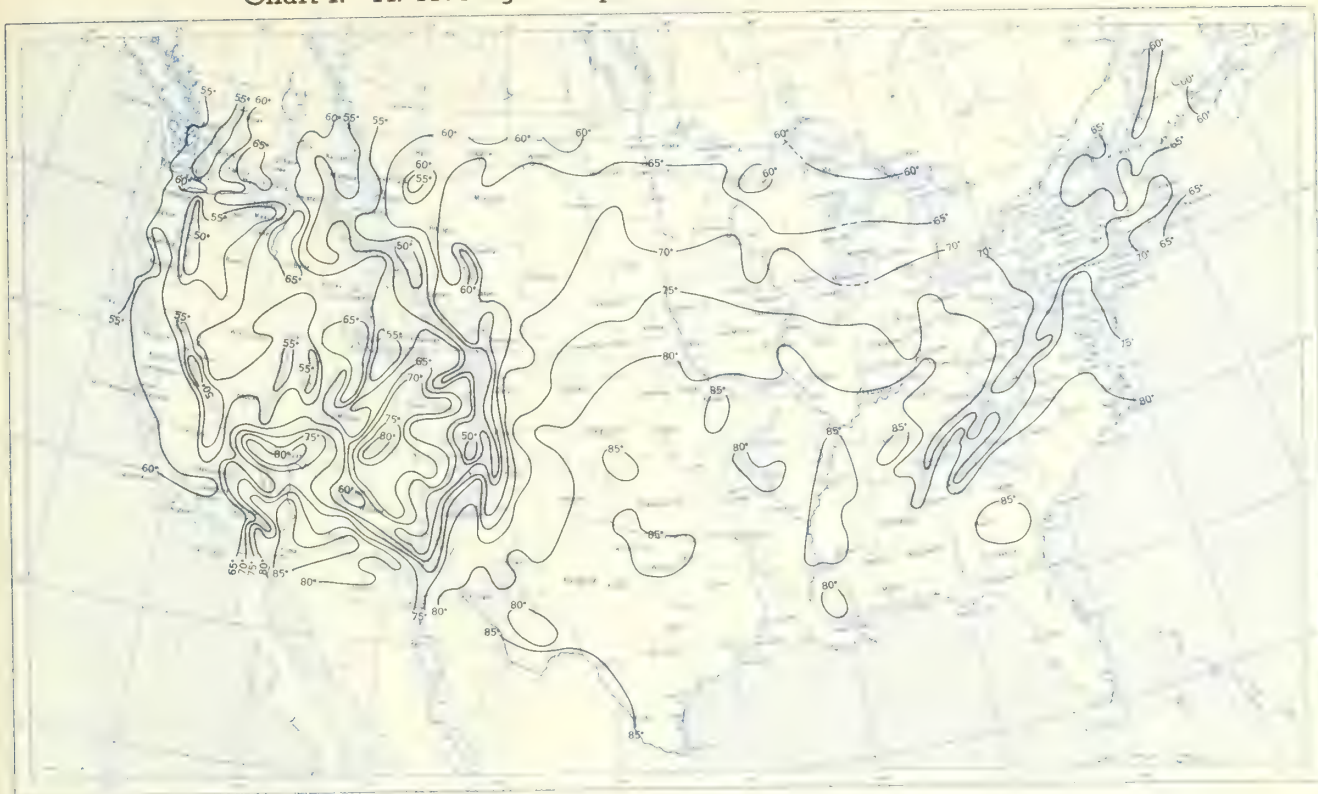




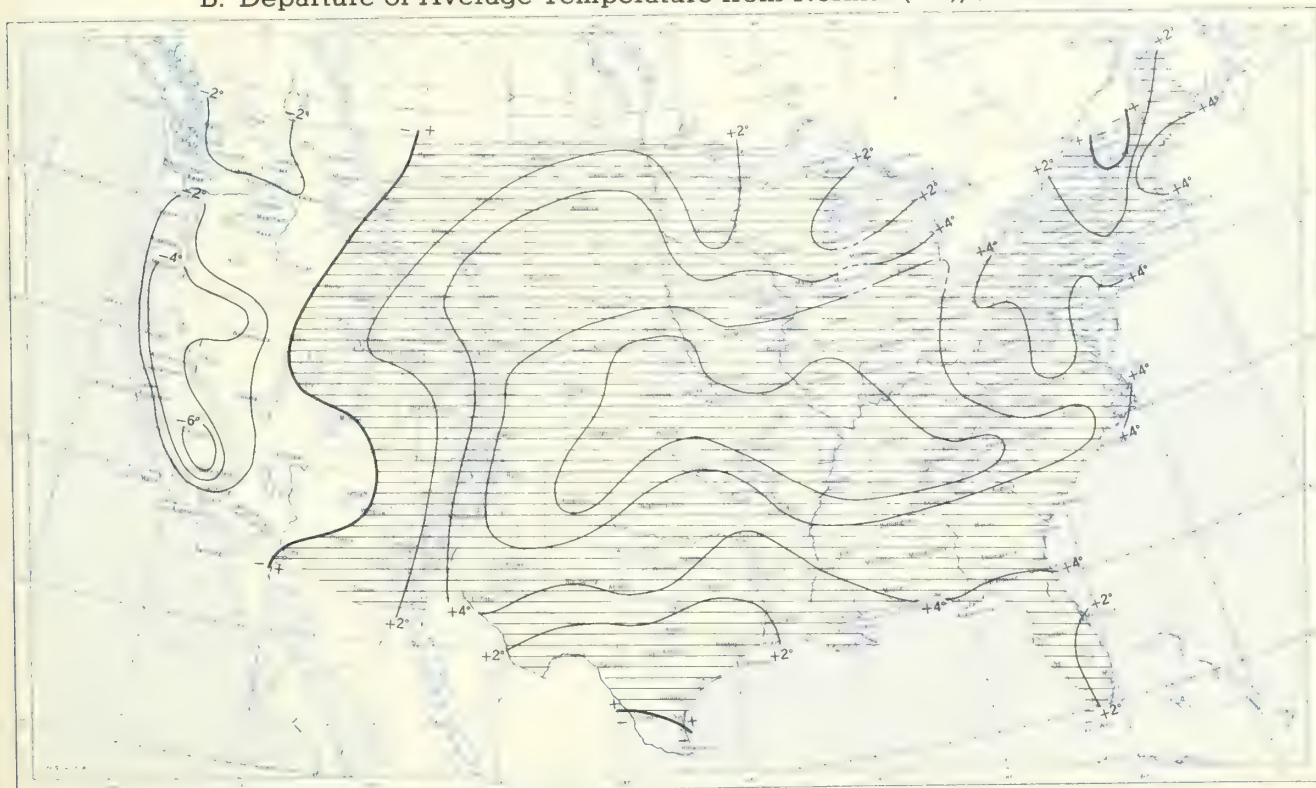




Chart I. A. Average Temperature ( $^{\circ}\text{F.}$ ) at Surface, June 1952.



B. Departure of Average Temperature from Normal ( $^{\circ}\text{F.}$ ), June 1952.

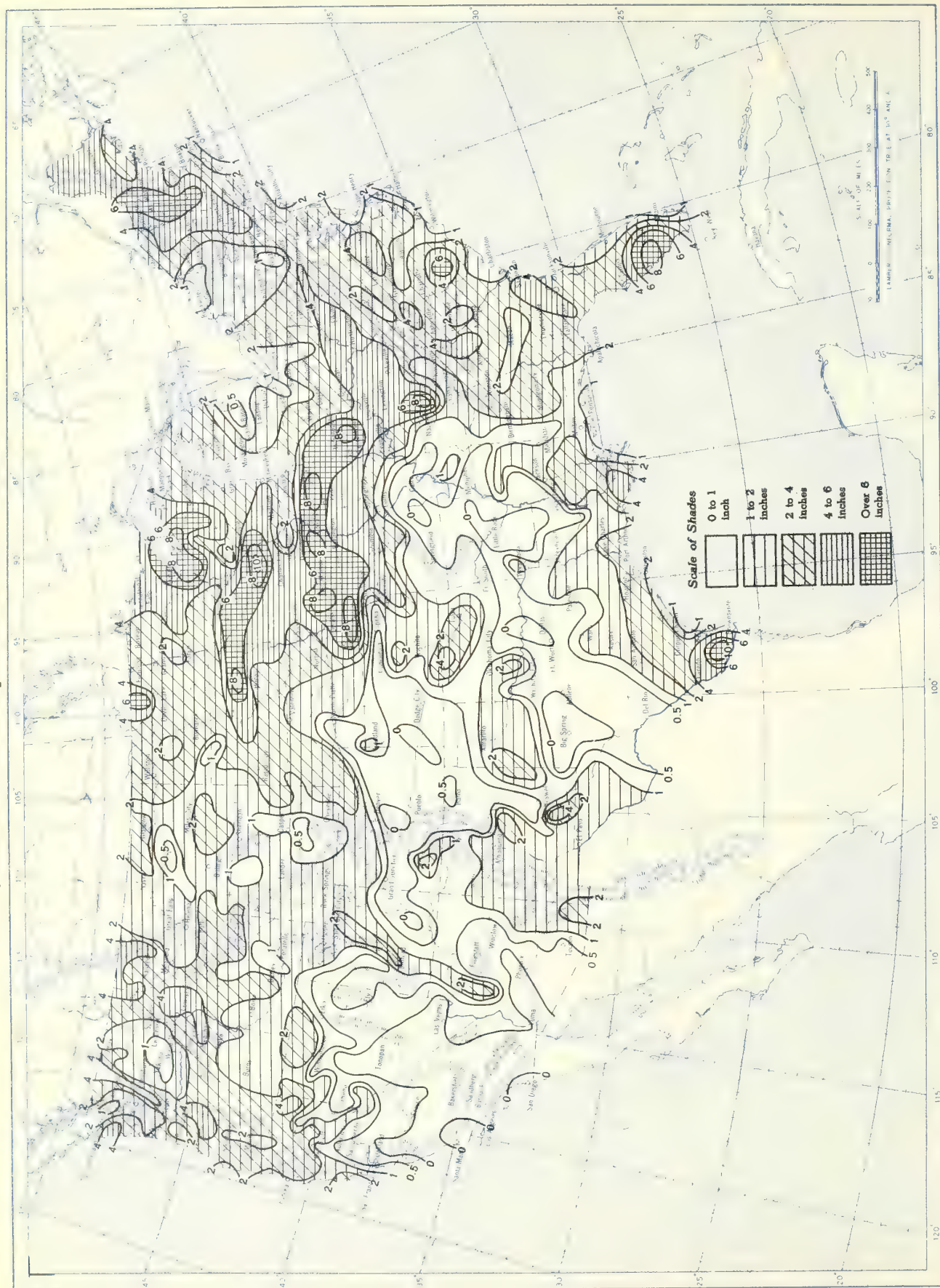


A. Based on reports from 800 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Normal average monthly temperatures are computed for Weather Bureau stations having at least 10 years of record.



Chart II. Total Precipitation (Inches), June 1952.



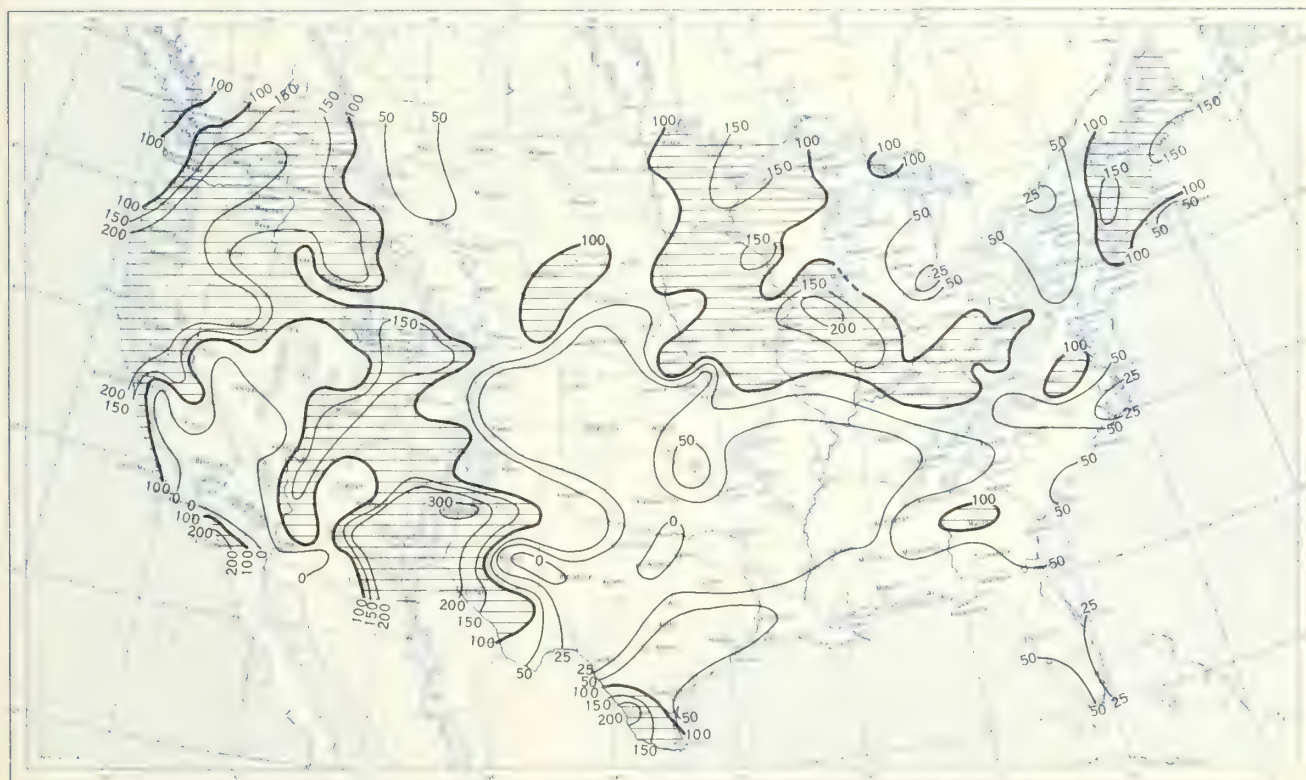
Based on daily precipitation records at 800 Weather Bureau and cooperative stations.



Chart III. A. Departure of Precipitation from Normal (Inches), June 1952.



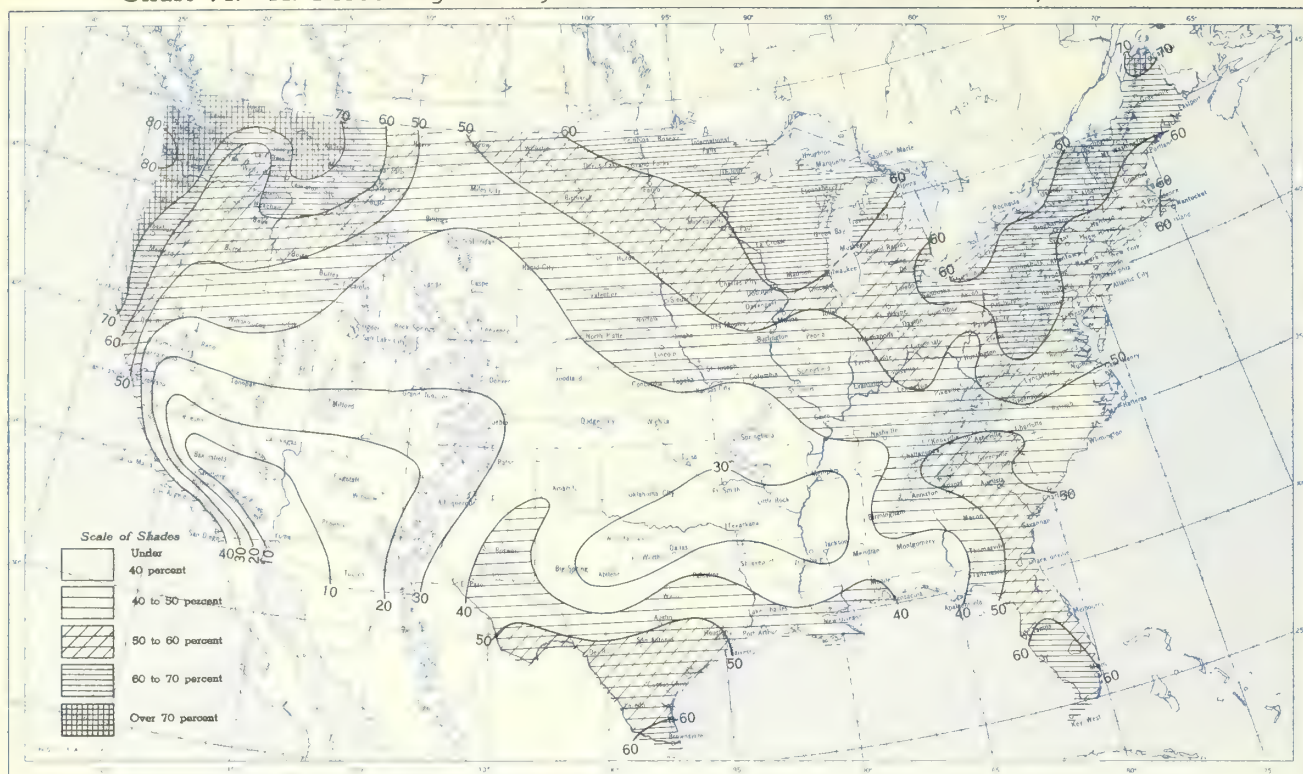
B. Percentage of Normal Precipitation, June 1952.



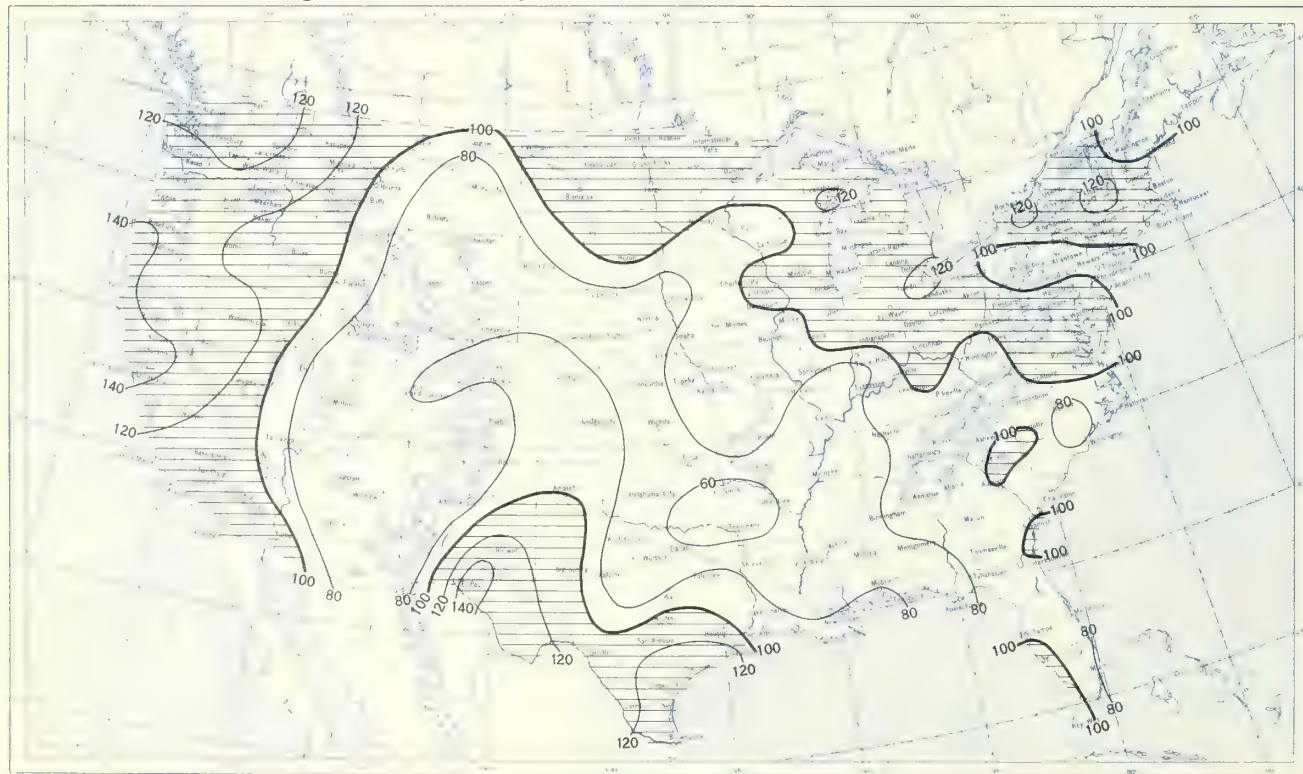
Normal monthly precipitation amounts are computed for stations having at least 10 years of record.



Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, June 1952.



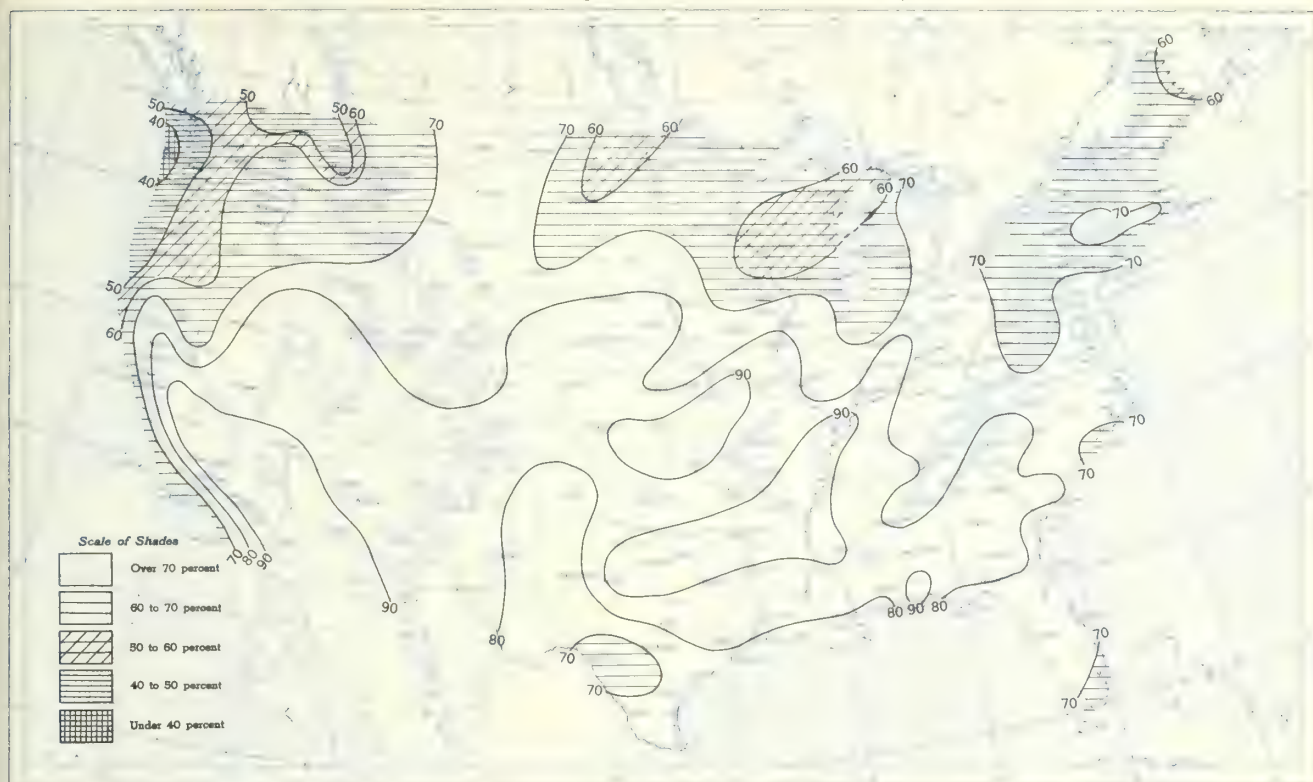
B. Percentage of Normal Sky Cover Between Sunrise and Sunset, June 1952.



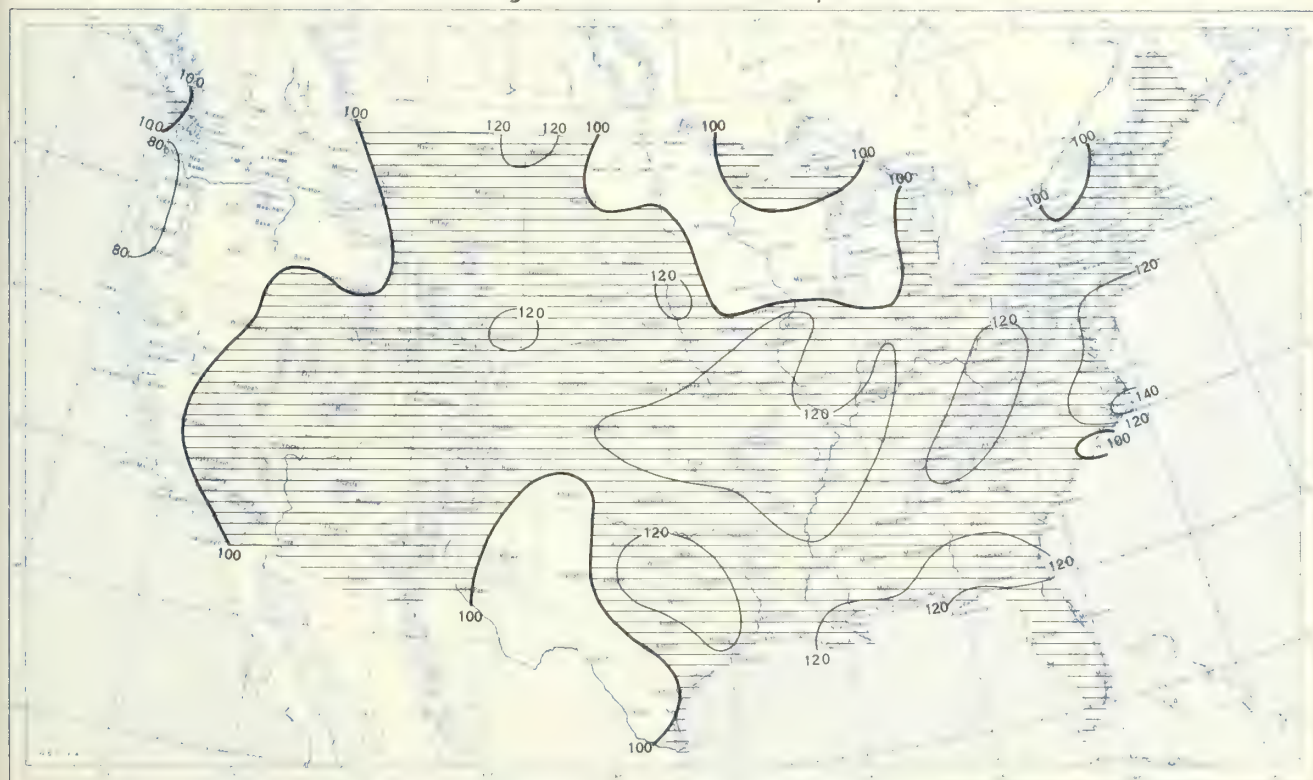
A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.



Chart VII. A. Percentage of Possible Sunshine, June 1952.



B. Percentage of Normal Sunshine, June 1952.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.



Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, June 1952. Inset: Percentage of Normal Average Daily Solar Radiation, June 1952.

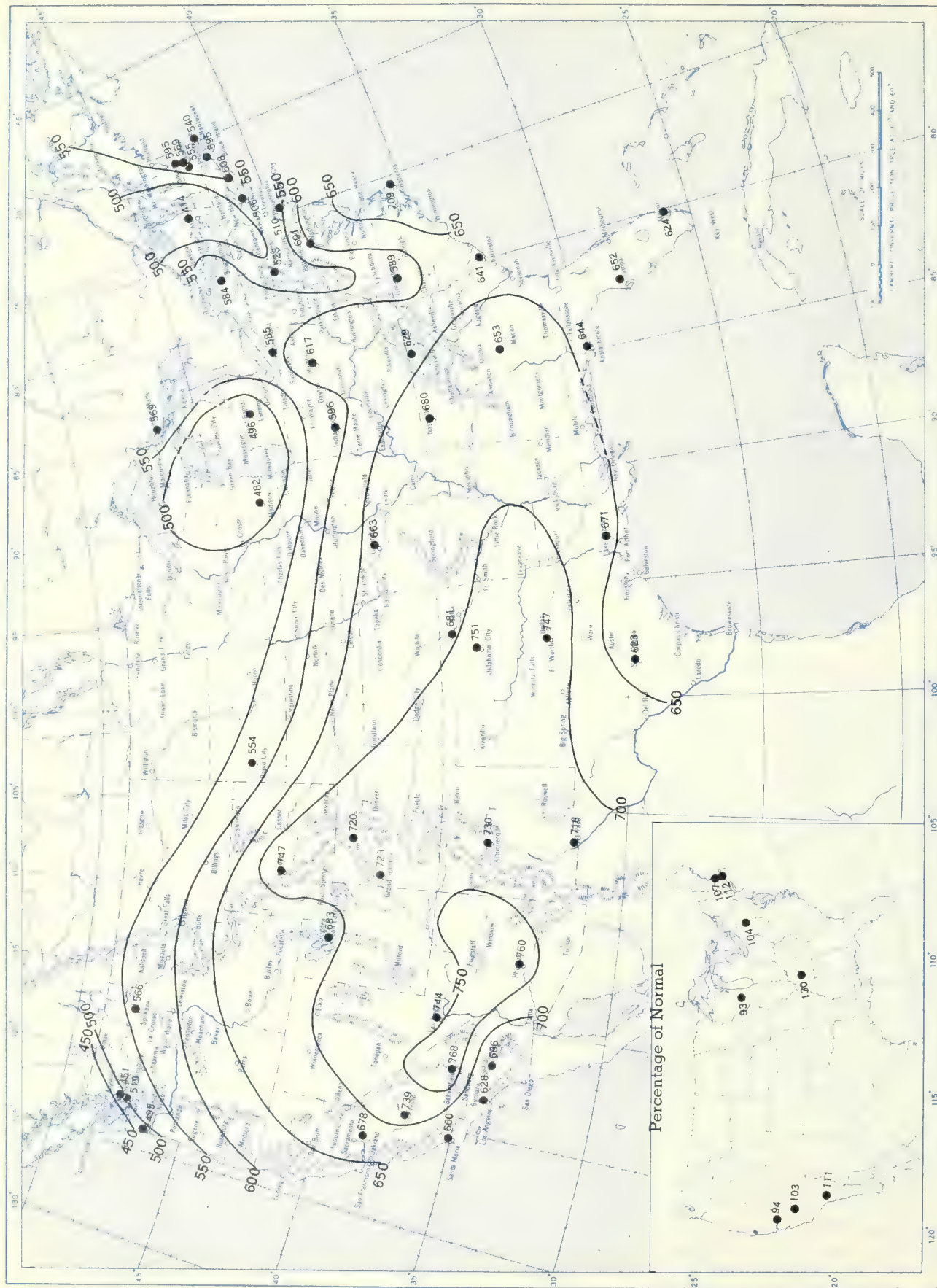
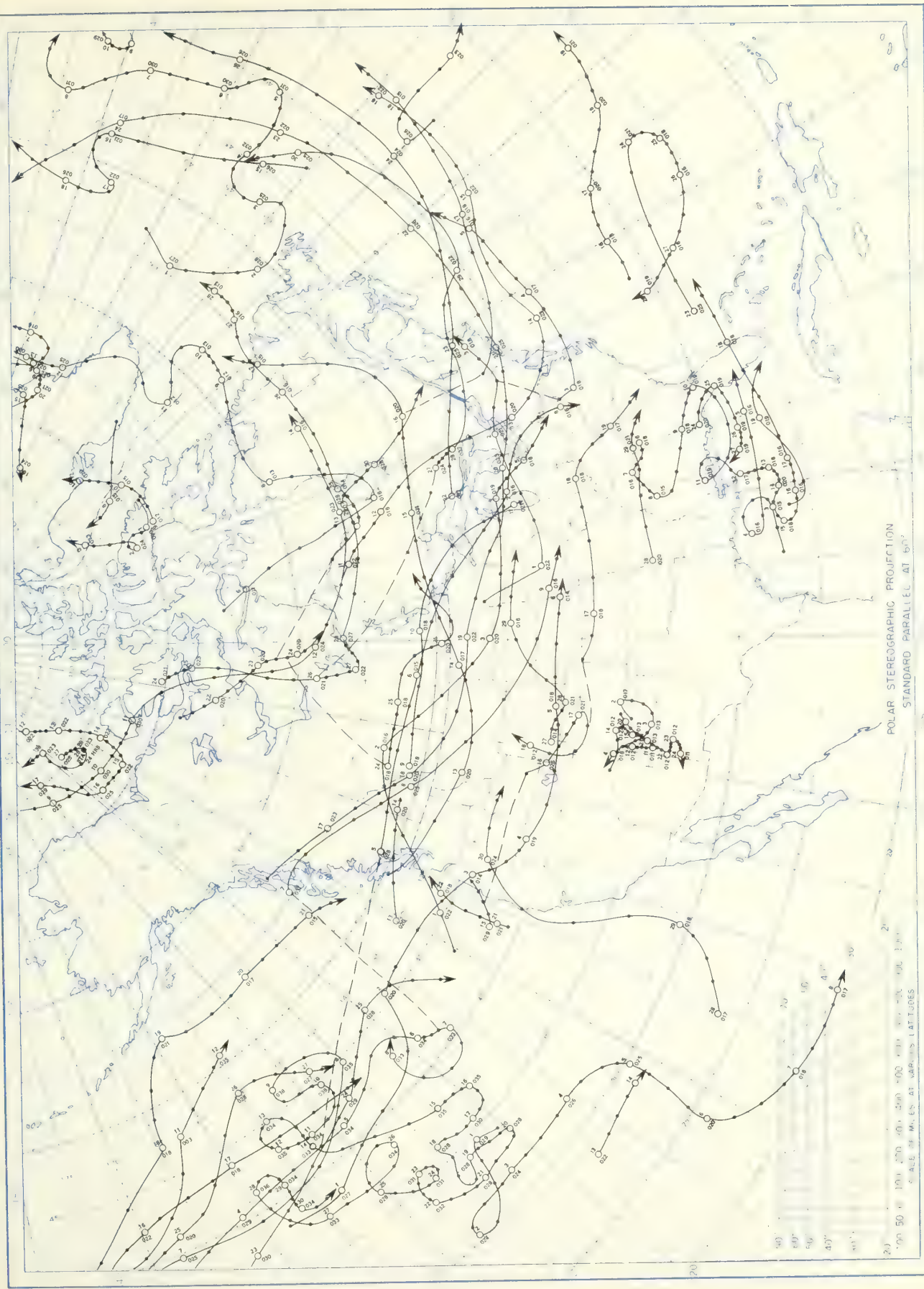


Chart IX. Tracks of Centers of Anticyclones at Sea Level, June 1952. Inset: Percentage of Normal Average Daily Solar Radiation, June 1952.



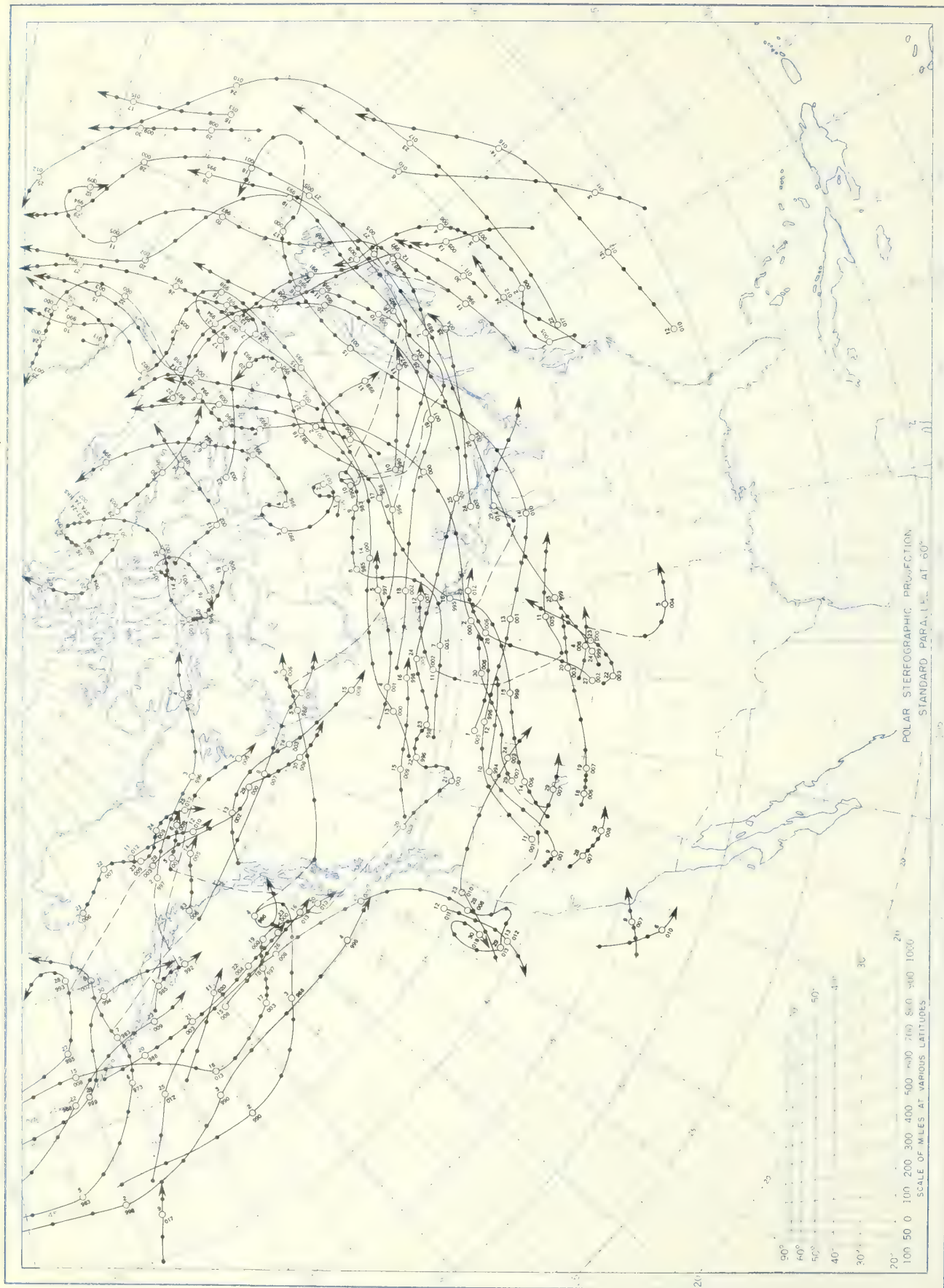
Chart IX. Tracks of Centers of Anticyclones at Sea Level, June 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



Chart X. Tracks of Centers of Cyclones at Sea Level, June 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. See Chart IX for explanation of symbols.



# Average Pressure (mb.) from Normal, June 1952.

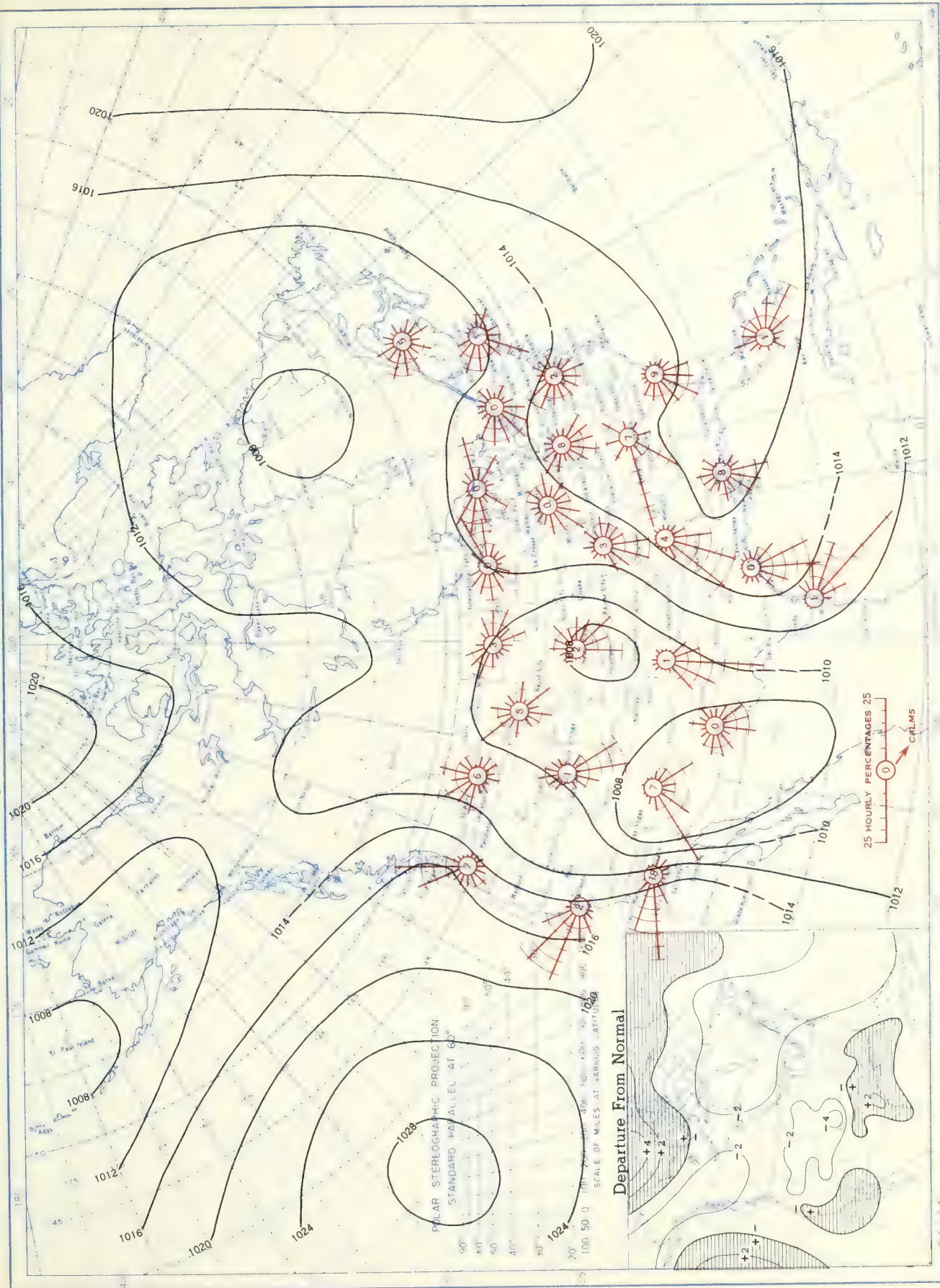
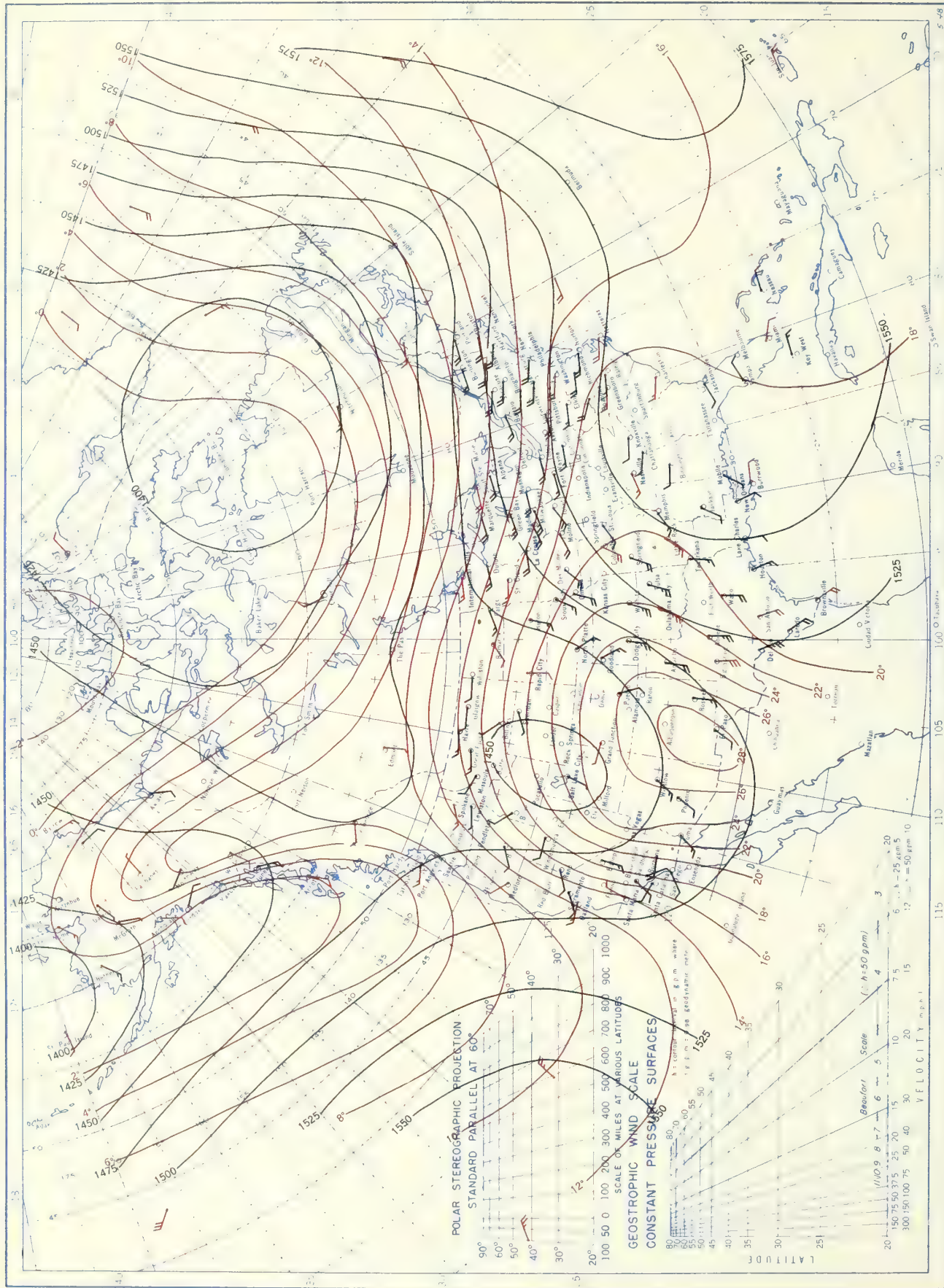




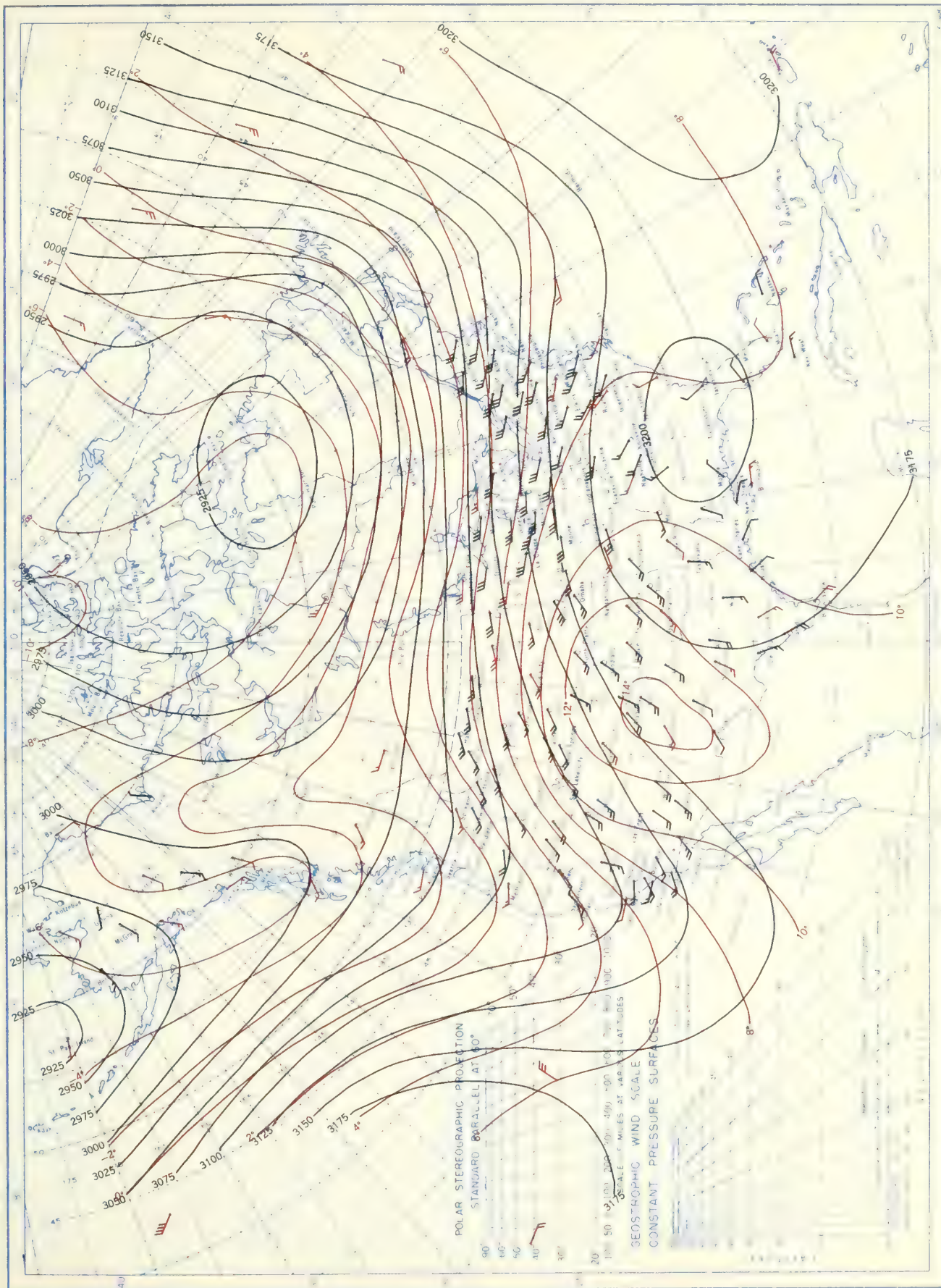
Chart XII. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 850-mb. Pressure Surface, Average Temperature in °C. at 850 mb., and Resultant Winds at 1500 Meters (m.s.l.), June 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T.

Surface, Average Temperature in °C. at 850 mb., and Resultant Winds at 1500 Meters (m.s.l.), June 1952.

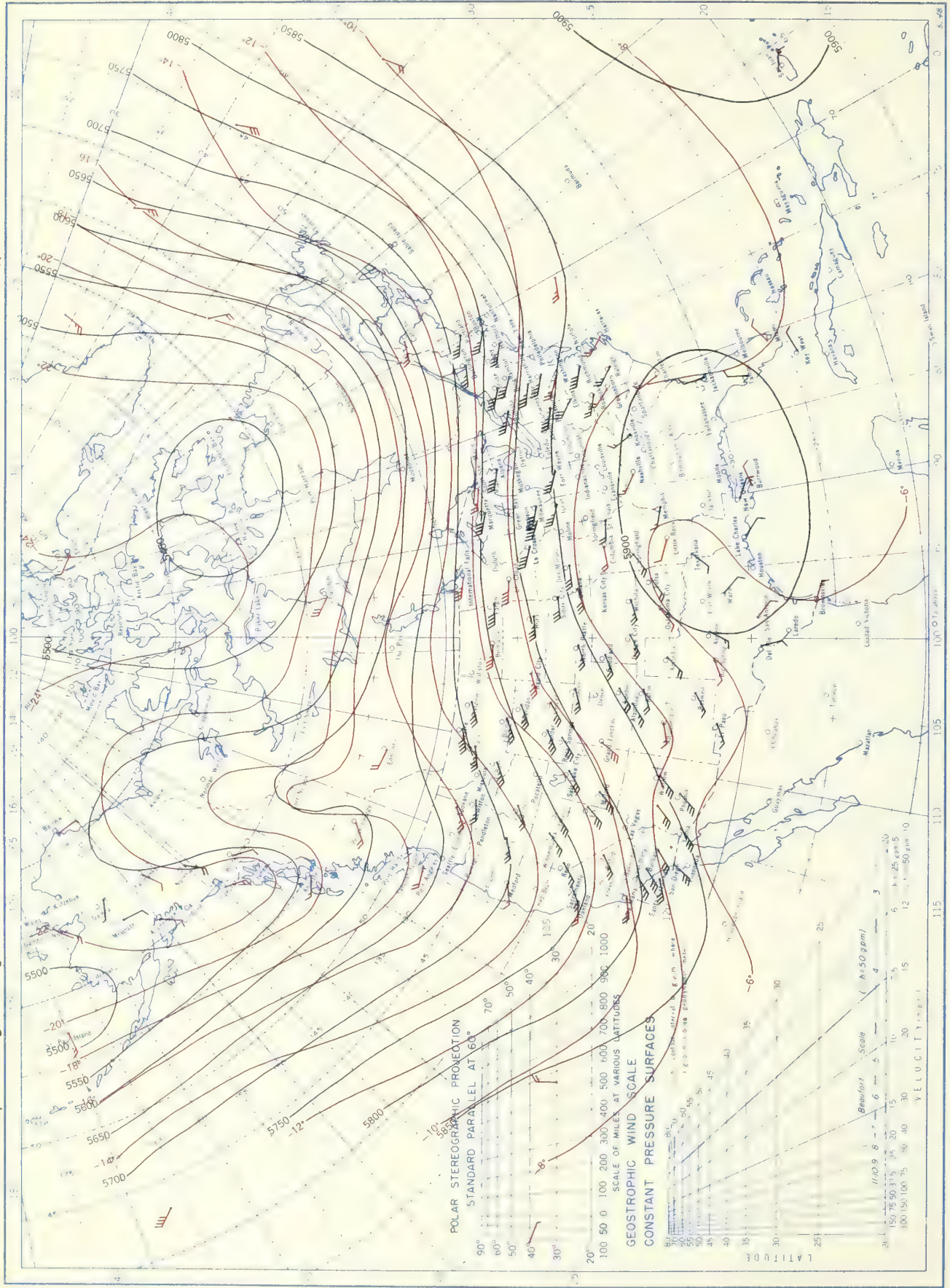




Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T.



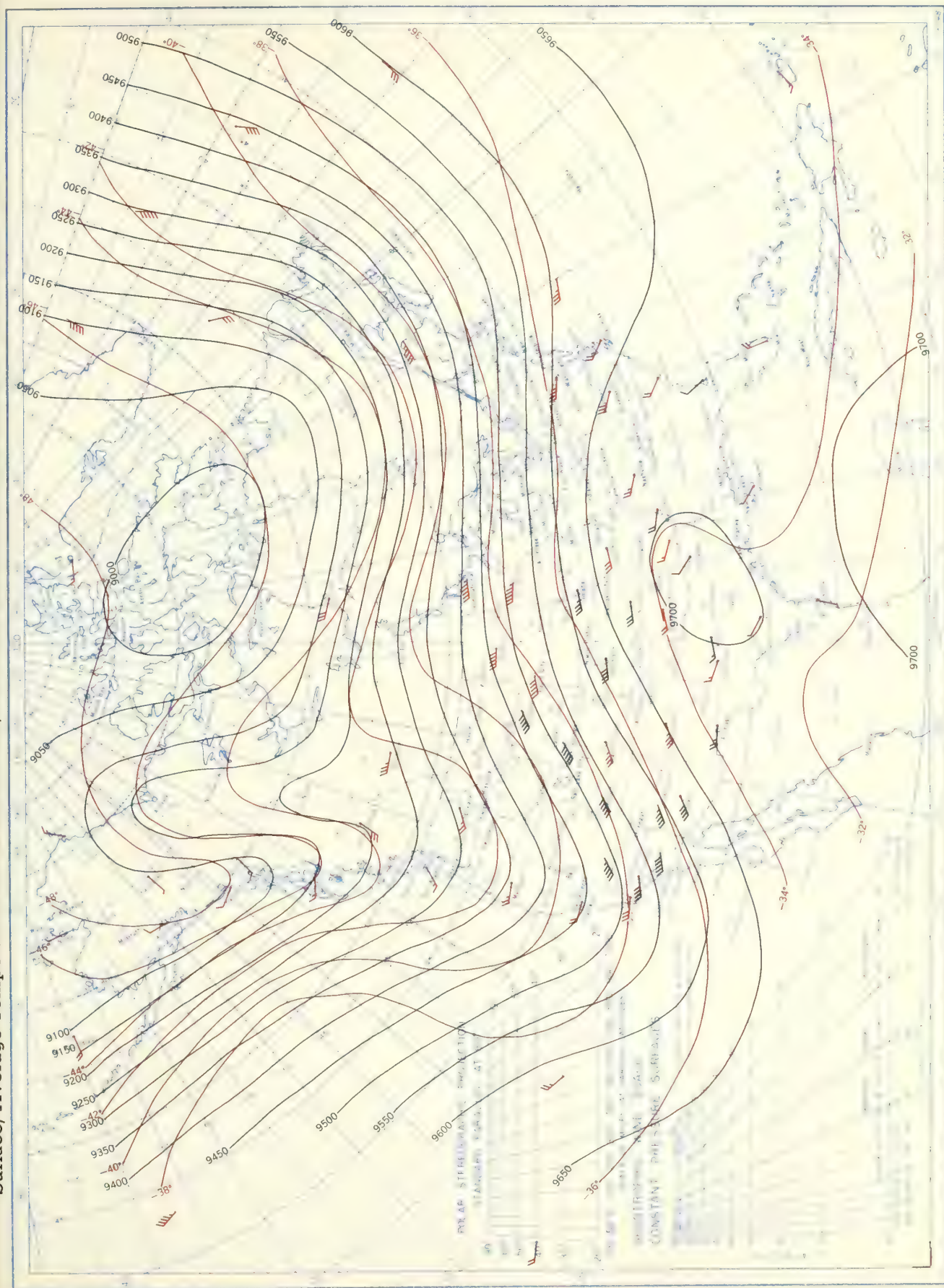
Chart XIV. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 500-mb. Pressure Surface, Average Temperature in C. at 500 mb., and Resultant Winds at 5000 Meters (m.s.l.), June 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0800 G. M. T.



Surface, Average Temperature in °C. at 300 mb., and Resultant Winds at 10,000 Meters (m.s.l.), June 1954.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0300 G. M. T.



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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

JULY 1952  
Volume 3 No. 7





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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

Volume 3 No. 7

JULY 1952

### GENERAL SUMMARY OF WEATHER CONDITIONS

The weather of July was characterized by high pressure, above normal temperature, abundant sunshine, deficient precipitation, and an almost complete lack of cyclonic general storms. Pressure averaged above normal over practically the entire country, with the departures generally exceeding 3 millibars in the eastern half. Many average and extreme high temperature records were broken east of the Rocky Mountains. In much of the southeastern United States the total hours of sunshine for the month exceeded 80 percent of the possible, which is considerably in excess of the long-term average. A precipitation deficiency, accentuated by hot, sunny weather, resulted in one of the most severe summer droughts of record in parts of the South and southern Great Plains. It caused heavy crop losses. The north-central interior was crossed frequently by rapidly moving line squalls along which locally severe thunderstorms with hail, high winds, excessive rains, and occasional tornadoes caused heavy losses of crops and property. Damaging flash floods occurred in the upper Mississippi Valley, the far Southwest, and southeastern New York and eastern Pennsylvania, but there were no important floods along the major streams.

Temperature for the United States averaged 74.9°, 0.7° above the long-term mean and 0.4° above the average for July 1951. Station averages were 2° or more below normal in much of Montana, and slightly below in adjacent areas of the northern Great Plains, along the Continental Divide, and in central and southeastern Texas. Elsewhere, averages were above normal, with departures generally exceeding 2° east of the Mississippi River, in east-central portions of the Great Plains, northern Texas, northern California, and interior sections of Oregon. Plus departures were as much as 4° in the southern Appalachian region, and ranged up to 6° at Boston, Mass., and Portland, Maine, in the Northeast. This was the hottest July on record in New England and one of the hottest in the South-Central and Southeastern States.

The first half of the month was marked by alternate warm and cool periods, and temperatures averaged near normal in most sections east of the Mississippi River. The principal cold period occurred during the passage of an extensive high pressure system across the Northwest and eastern portions of the country during the second half of the first decade. Most stations in the Northwest and east of the Rocky Mountains, except those in the upper Lakes and Northeast, recorded their coldest weather of the month during this period. Tower Falls, Wyo., recorded the lowest temperature for the month, 20°, on the 7th, and a number of stations in Montana, Nebraska, and Kansas reported their lowest July temperatures on record—Helena, Mont., 36° on the 7th; North Platte, Nebr., 40° and Goodland, Kans., 42°, both on the 8th. In the vicinity of Flats, Nebr., 60 miles northwest

of North Platte, two ranchers reported frost on the morning of the 8th. Lowest temperatures at many stations in the extreme Northeast were observed at the beginning of the month and at most stations in the upper Lake region near the end. Light frost was observed in north-central Wisconsin on the 29th, where the temperature fell to 31° at Land O'Lakes.

The latter half of the month was much warmer than normal, particularly in the South and East. All stations east of the Rocky Mountains, except some in the upper Lakes and northeastern regions, recorded their monthly maxima during the last decade. At many stations in the Southeast extreme maxima reached all-time peaks and monthly averages were the highest on record. A reading of 112° at Louisville, Ga., on the 24th established a new all-time high for that State, and maxima of 110° or higher occurred at one or more stations in Kentucky, Tennessee, Mississippi, and Alabama. The heat wave occasionally extended into the northern Great Plains and during the period from the 24th to the 27th Nebraska and South Dakota recorded extremes of 110° and 115° respectively. Cow Creek in Death Valley, Calif., recorded the month's highest temperature, 122° on the 16th and 17th.

Precipitation for the United States averaged 2.40 inches, 0.36 inch below the long-term mean and 0.39 inch below the average for July 1951. Rainfall was predominantly of the thundershower type and very unevenly distributed. Monthly accumulations were greatest in the upper Lakes region, the upper Mississippi Valley, and along the west-central and western Gulf Coast, with Lake Charles, La., measuring 19.29 inches, Rockford, Ill., 15.54, and Aitkin, Minn., 15.52 inches. This was the wettest July on record in Michigan and one of the wettest in Wisconsin and Minnesota. Heaviest rains fell in these States from about the 16th through the 20th. During this period Aitkin, Minn., received 12.69 inches. These heavy downpours and resulting flash floods caused crop and property damage that totaled \$1,000,000 or more in Wisconsin and well over \$1,000,000 in Minnesota. Heaviest rains along the central Gulf Coast occurred from about the 15th to the 17th when a Gulf squall moved up the Mississippi Valley. These rains broke the drought in the southern half of Louisiana and extreme southern Mississippi. Another area of above-normal rainfall included New Jersey and eastern portions of Pennsylvania and New York, with heaviest rains from July 8 to 10 generally totaling 3 to 5 inches, but exceeding 9 inches in the Pocono area of Pennsylvania and the Catskill region of New York, where 24-hour amounts of over 7 inches occurred. Flash floods produced by these rains drowned 4 persons and caused \$500,000 property damage in Pennsylvania and considerable damage in New York. Precipitation was also above normal in parts of the far West.



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In Utah, Nevada, Arizona, and New Mexico, heavy local showers caused many flash floods, with the one at Albuquerque, N. Mex. resulting in \$58,000 damage on the 14th.

Precipitation was generally below normal in the central and lower Great Plains, much of the South and Midwest, and along the Atlantic Coast. Rainfall for South Carolina and Alabama was the least on record for July, and for Georgia the least for July since 1888. Deficiencies generally ranged from 2 to over 3 inches in the South, and as much as 5 inches in central Georgia and Alabama where monthly totals were less than 25 percent of normal. Precipitation was light or entirely lacking in the Pacific Northwest, generally less than one-half of normal in much of the Great Plains, and less than one-fourth of the usual amount in the coastal areas of New England.

Severe local storms were most frequent in the extreme north-central interior, along the Middle Atlantic Coast, and in Arizona. No damage was reported from the Pacific States and very little from the South Central States. In the Mountain States losses exceeded \$2,000,000, most of which was caused by hailstorms in Montana from the 15th to the 19th. Storm damage in North Dakota, Minnesota, Wisconsin, Nebraska, Iowa, New England, and North Carolina also exceeded \$1,000,000 in each State. At least 50 persons were killed and 150 injured by storms. One of the worst hailstorms occurred on the afternoon of the 13th in the western third of Kimball County, Nebr., damaging standing winter wheat and irrigated crops to the extent of about \$2,000,000. Line-squall winds, with gusts estimated as high as 85 m.p.h., damaged power and communication lines and buildings in northeastern Massachusetts, and capsized about 200 small craft in Salem Harbor; 5 persons were drowned and damage was estimated at about \$1,000,000. A million dollar hailstorm occurred in northwestern Iowa on the 6th. Five tornadoes were observed in Oklahoma, a record number for that State in July, but total damage was only \$13,000. Four personal injuries and \$300,000 damage occurred in the path of a probable tornado at Manchester, Minn., and vicinity on the 27th.

Agricultural losses of nearly a million dollars resulted from an earthquake in the San Joaquin Valley of California on the 21st.

Crops during July did well in areas with plenty rainfall, but deteriorated further in many eastern and southern sections where the severe drought of June continued. Pastures and livestock were in good condition in the far West, and irrigation water was generally plentiful. Corn made rapid progress in the Main Belt and at the end of the month was a few weeks ahead of normal, but it suffered considerably in southern areas east of the Rocky Mountains. Cotton suffered from the drought but was relatively free of weevil, which partially offset drought damage. The crop was in poor condition in some of the driest areas at the end of the month, and a good soaking rain was needed in most sections. There were many complaints of small plants, delayed growth, much shedding, premature opening of bolls, and reduced prospects. The first bale of the season in South Carolina was ginned on July 28, the earliest since 1915 in that State. In Texas there were many reports of deterioration, but the crop was making mostly fair to good progress. In the far Southwest the development of cotton was mostly good to very good. The combination of heat and dryness in New England caused heavy deterioration of crops in New Hampshire, Massachusetts, and Maine. At the end of the month many miscellaneous crops, such as soybeans, sweet potatoes, and other row crops, were in poor condition in most southern areas. Crop losses in Georgia were estimated at 25 to 50 percent or more, with some fields of corn, vegetables, and pastures nearly a complete failure. Cotton, sweet potatoes, and peanut prospects suffered about a 25 percent loss, but fruits and tobacco had already matured before the drought reached its greatest severity. Somewhat similar conditions obtained in Alabama, Mississippi, Tennessee, and North Carolina. It was reported that Tennessee as a whole probably suffered from the most widespread drought in its history, with corn, burley tobacco, hay, pastures, and truck crops suffering irreparable losses.



# CONDENSED CLIMATOLOGICAL SUMMARY

Table 1

JULY 1952

Section	Temperature								Precipitation					
	Average	Departure from normal	Monthly extremes						Average	Departure from normal	Monthly extremes			
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least
	*F.	*F.		*F.			*F.		In.	In.		In.		In.
Alabama	82.8	+2.5	St. Bernard	110	30	Valley Head	49	10	2.07	-3.41	Dothan CAA AP	6.40	Wadley	T
Arizona	79.1	-1.1	3 Stations	116	°18	Fort Valley	30	14	1.62	-.05	Tonto Cr. Fish Hatch.	5.19	Yuma WB AP	.02
Arkansas	82.4	+1.9	4 Stations	109	°27	5 Stations	50	9	2.51	-1.23	Jonesboro	6.46	Des Arc	.27
California	76.2	+3	Cow Creek	122	°16	2 Stations	30	°1	.31	+2.20	Cedar Grove	2.75	156 Stations	.00
Colorado	68.2	+8	Holly	108	22	do	25	°8	1.35	-.67	Independence Pass	4.94	Eads	.02
Connecticut	74.4	+4.3	2 Stations	98	°14	Mansfield Hollow Dam	41	1	2.83	-1.10	Easton Lake Res.	6.06	Pachaug St. For. 3NE	.94
Delaware	78.3	+2.2	Georgetown	101	23	Georgetown	43	2	5.33	+6.2	Wilmington Porter Res	9.58	Georgetown	2.91
Florida	82.3	+1.0	De Funiak Springs	105	°24	Lake City 2E	59	4	5.38	-2.08	Arcadia	12.78	Merritt Island	.00
Georgia	82.4	+2.1	Louisville	112	24	Blairsville Exp. Sta.	45	10	2.87	-2.96	Folkston	7.70	Fairmont	T
Idaho	66.7	-1.7	Orofino	106	30	3 Stations	26	°2	.55	-.06	Hollister	2.10	Council 1N	.00
Illinois	78.1	+1.7	Harrisburg	109	27	2 Stations	47	31	3.44	+2.21	Rockford	15.54	Roberts 3N	.58
Indiana	77.3	+1.7	Evansville	108	27	Wheatfield	44	31	2.49	-.84	Goshen College	7.62	Evans Landing Dam	.48
Iowa	74.7	-.2	2 Stations	103	27	Saratoga & Sibley	42	29	3.84	+2.24	Alta	7.89	Augusta	.85
Kansas	80.4	+8	Kingman	110	°26	Leoti	40	°1	2.27	-.68	Garnett	6.91	Johnson 10ESE	.09
Kentucky	79.4	+2.4	2 Stations	110	°27	2 Stations	47	°10	2.59	-1.56	Ford Lock 10	6.46	Irvington	.45
Louisiana	82.5	+4	Bastrop	107	26	Cotton Valley	57	10	6.25	+3.7	Lake Charles	19.29	Lake Providence	.66
Maine	71.9	+4.7	Old Town	102	7	Jackman	32	30	.97	-2.39	Presque Isle	3.47	Bangor	.08
Maryland	77.9	+2.7	3 Stations	103	°24	Princess Anne	41	2	3.69	-.60	Conowingo Dam	9.15	Frostburg	.56
Massachusetts	74.4	+3.8	2 Stations	102	23	Birch Hill Dam	39	1	1.37	-2.13	Belchertown	5.76	New Bedford	.02
Michigan	70.9	+1.9	Wayne	100	12	2 Stations	32	°29	5.48	+2.74	Standish 2S	11.68	Ann Arbor	1.50
Minnesota	69.7	-.1	Springfield	■	26	Moose Lake 1SE	36	29	5.37	+2.05	Aitkin Ranger Sta.	15.52	Dawson	.74
Mississippi	82.8	+1.7	2 Stations	110	°27	Houston 1S	53	11	3.24	-1.80	Picayune	9.57	Rolling Fork	.10
Missouri	79.7	+2.0	Crystal City 1N	109	27	Black	45	■	3.48	-.05	Birch Tree	7.28	Granby	1.18
Montana	65.0	-3.4	2 Stations	107	24	Yellowstone Pk NE En	22	7	1.41	+0.2	Westby	4.68	2 Stations	.11
Nebraska	75.8	+3	Fort Robinson	110	25	Gordon 1E	33	8	2.73	-.36	Bloomington 2S	9.94	Scottsbluff WB AP	.19
Nevada	72.6	-.9	Bunkerville	114	18	Jarbridge	29	2	.85	+4.6	Sarcobatus	3.21	Lahontan Dam	.00
New Hampshire	71.2	+3.1	3 Stations	100	°23	2 Stations	34	°1	2.45	-1.26	Benton	4.35	Milan 6N	.68
New Jersey	77.0	+3.0	do	101	°23	Pleasantville	41	2	4.85	+0.9	Trenton 2	8.64	Sandy Hook	1.30
New Mexico	73.1	-.2	2 Stations	105	°2	Eagle West	34	19	2.01	-.26	Aurora	6.36	Eagle	.30
New York	72.7	+2.8	do	100	°13	Speculator	33	°1	3.80	-.15	Peekamoose	12.37	Bridgehampton	.71
North Carolina	79.1	+2.2	8 Stations	107	°22	Mt. Mitchell	39	10	4.29	-1.71	Rocky Mount	11.68	Daybook	.00
North Dakota	67.8	-1.8	Fort Yates	105	°24	Belcourt Indian Res.	34	30	2.79	+3.2	Hillsboro	12.29	Haley	.57
Ohio	76.3	+2.6	Gallipolis 5W	106	26	Mosquito Creek Dam	40	25	3.16	-.62	Thornville	6.24	Dayton	.86
Oklahoma	82.7	+4	Alva	112	°27	3 Stations	45	°8	2.41	-.38	Perkins	6.09	Oakwood 3SW	T
Oregon	67.3	+4	The Dalles	109	10	Seneca	25	17	.15	-.29	Gerber Dam	1.96	74 Stations	.00
Pennsylvania	74.6	+2.4	4 Stations	100	°14	Kane 1NNE	36	11	4.48	+1.5	Freeland	12.83	Kegg	1.15
Rhode Island	75.5	+5.1	Providence WB City	99	23	Kingston	44	1	4.40	-2.50	Austin	1.34	Providence WB City	.24
South Carolina	81.3	+1.4	Bamberg	109	24	2 Stations	52	10	3.32	-2.60	Bethera 4SW	8.14	Paris Mt. Fire Twr.	.84
South Dakota	72.8	-.3	Milesville 5NE	115	24	Deerfield Dam	30	■	1.63	-.79	Vermillion	5.90	Winner	.25
Tennessee	80.4	+2.6	Savannah	112	28	Gatlinburg 2SW	43	10	2.64	-1.85	Martin Jr. College	6.57	Irving College	.33
Texas	82.3	-.1	Bridgeport	114	27	Miami	46	9	2.12	-.38	Evadale	12.62	9 Stations	.00
Utah	70.9	-1.0	Zion Nat'l. Park	108	23	Silver Lake Brighton	31	20	.80	-.16	Monticello	3.62	6 Stations	T
Vermont	70.4	+2.6	Middlesex	97	15	West Burke	33	30	2.67	-1.17	Cavendish	4.95	Lemington	1.26
Virginia	77.8	+2.5	3 Stations	107	°23	3 Stations	43	°2	3.31	-1.34	Dungannon	7.48	Onley 1S	.59
Washington	66.9	+2	do	108	°9	Bumping Lake	27	6	.30	-.35	Index	1.75	17 Stations	.00
West Virginia	75.2	+2.1	Moorefield-McNeill	105	28	Canaan Valley	37	25	3.00	-1.60	Morgantown Lock & Dam	6.16	Alderson	.74
Wisconsin	71.1	+1.0	Kenosha	■	27	Land O'Lakes	31	29	5.92	+2.50	West Bend	12.17	Eau Claire	1.88
Wyoming	65.5	-.9	Erway 3NW	107	19	Tower Falls	20	7	1.07	-.19	Sheridan Field Sta.	4.39	Farson	.00
*Alaska	34.1	-4.6	Ketchikan	70	14	Uniat WB AP	-22	3	1.13	-.08	Little Port Walter	14.23	Chitina	.00
**Hawaii	72.0	-1.4	Puene CAA AP	94	15	Haleakala RS	39	°19	5.07	+7.77	Kukui	46.00	21 Stations	.00
Puerto Rico	78.3	-.3	Corozal (2)	96	°4	Guineo Reservoir	59	30	9.47	+3.30	Rio Blanco (1800 ft.)	28.67	Santa Rita	2.15

° Other dates also.  
 \* May 1952.  
 \*\* June 1952.



## CLIMATOLOGICAL DATA

Table 2

JULY 1952

State and station	Elevation (ground)	Pressure			Temperature										Precipitation						Wind			No. of days		Possible sunshine							
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max 90° F. or above Min. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days .01 inch or more With thunderstorms	Snow, Sleet, Hail	Max. depth on ground	Average hourly speed	Prevailing direction	Fastest mile		to sunset								
																							Speed	Direction			Date	Clear	Partly cloudy	Cloudy	Sky cover (tenths (sunrise to sunset))		
	Fl.	Mh.	Mh.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	Date	°F.	%	In.	In.	In.	.01 inch or more	No. of days With thunderstorms	Total	Max. depth on ground	M. p. h.	Prevailing direction	Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover (tenths (sunrise to sunset))	%			
ALABAMA																																	
Anniston	599													68	61	1.11	-4.06	0.81	6	10	T	4.1	E	42	SW	7	11	18	2	4.6	76		
Birmingham	610	994.9	1019.9	96	70	82.9	+3.2	106	25	56	10	28	0	66	61	1.11	-4.06	0.81	6	10	T	6.5	E	42	SW	7	11	18	2	4.6	76		
Mobile CO	10			92	75	83.5	+2.1	103	25	71	11	23	0	72	78	2.00	-4.89	.89	10	14	0.0	8.9	E	47	E	7	13	11	6.1	58			
Mobile	211	1010.8	1019.3	93	73	82.9	---	104	25	69	7	25	0	72	78	4.76	---	1.46	15	18	0	7.8	E	---	---	6	20	5	6.2	---			
Montgomery CO	201			95	74	84.4	+2.5	105	24	69	7	28	0	---	---	2.48	-2.38	.99	8	4	0	---	---	---	---	25	14	12	5	4.6	79		
Montgomery	198	1011.9	1019.2	96	72	84.1	+2.4	105	24	67	11	29	0	69	65	1.58	-3.28	.58	7	8	0	5.9	E	35	SE	25	14	12	5	4.6	79		
ARIZONA																																	
Flagstaff	6993	792.1	1019.1	80	48	63.7	---	86	3	37	13	0	0	---	---	2.10	---	.98	11	14	T	---	---	---	---	---	13	10	8	4.5	---		
Phoenix CO	1083			104	77	90.0	+2	112	18	65	26	31	0	---	---	1.46	+3.9	1.13	6	5	0	6.8	E	48	E	26	---	---	---	---	93		
Phoenix	1108	972.2	1010.3	104	76	89.9	---	112	18	68	1	31	0	58	38	.54	-.53	.22	6	6	0	5.0	NW	---	---	22	6	3	2.8	---			
Prescott	5014	850.0	1014.2	89	59	73.7	---	94	3	50	14	15	0	45	43	2.15	---	.57	8	12	T	8.6	SW	35	SE	23	16	10	5	3.6	82		
Tucson	2558	925.2	1011.1	100	72	86.0	-.4	107	18	68	27	31	0	53	39	3.25	+1.01	1.04	10	14	T	6.4	SE	50	E	26	13	13	5	4.2	79		
Winslow	4880	854.0	1012.3	92	61	76.3	-1.4	98	19	55	2	22	0	45	41	1.50	-.74	.72	9	12	T	8.1	W	44	SE	27	16	10	3	4.1	---		
Yuma	203	1004.4	1009.3	108	80	93.9	---	114	18	72	14	31	0	56	33	.02	---	.02	1	3	0	8.1	SSE	51	S	19	24	6	1	1.5	93		
ARKANSAS																																	
Fort Smith	458	1001.0	1017.2	96	71	83.6	+2.1	103	27	57	9	27	0	67	64	1.39	-1.98	.63	5	7	0	6.9	NE	27	S	14	13	12	6	4.4	68		
Little Rock	257	1005.1	1017.9	95	72	83.6	+2.7	104	27	62	9	26	0	68	66	2.85	-.65	1.12	7	8	0	7.3	SW	37	S	17	11	15	5	4.2	80		
Texarkana	361	1004.7	1017.8	94	73	83.4	+5.5	99	25	62	10	26	0	70	72	2.35	-1.44	1.34	7	7	0	7.4	S	44	S	16	13	15	5	4.4	80		
CALIFORNIA																																	
Bakersfield	489	994.2	1011.8	99	69	84.1	---	105	5	59	1	31	0	53	37	.10	+.09	.10	1	0	0	6.1	WNW	*18	NW	*6	25	3	3	1.8	---		
Beaumont CO	2589			95	59	76.7	---	102	4	50	1	29	0	---	---	.15	---	.09	4	5	0	---	---	---	---	---	24	4	3	1.7	---		
Bishop	4108	874.7	1012.5	90	58	76.7	---	101	16	49	1	29	0	---	---	.20	---	.20	1	9	0	---	---	---	---	---	15	10	6	3	7.7	---	
Blue Canyon	5280	842.5	1012.9	80	61	70.3	---	86	8	51	1	0	0	---	---	.38	---	.21	4	5	T	---	---	---	---	---	22	5	4	2.7	---		
Burbank	699	987.8	1013.9	88	60	74.0	---	97	26	53	*3	12	0	55	60	T	---	T	0	0	0	4.8	SE	*15	S	29	20	9	2	3.0	---		
Eureka CO	43	1015.2	1017.6	59	51	55.3	-.2	66	7	48	6	0	0	---	---	T	-.11	T	0	0	0	6.3	---	21	SW	20	4	11	16	7.1	50		
Fresno	331	1000.7	1012.1	98	66	81.7	+.4	103	16	55	1	30	0	58	49	T	-.01	T	0	0	0	6.3	WNW	17	NW	25	25	5	1	1.7	97		
Los Angeles CO	312			84	61	72.3	+2.1	93	27	54	1	2	0	---	---	T	-.01	T	0	0	0	5.0	---	17	W	26	21	9	1	2.6	84		
Los Angeles	99	1010.2	1013.9	73	59	65.7	---	81	26	55	*1	0	0	57	78	T	---	T	0	0	0	6.3	WSW	---	---	---	13	12	6	4.5	---		
Mt. Shasta CO	3543	894.0	1015.8	87	54	70.3	+2.4	96	8	47	*2	11	0	---	---	.70	+.56	.26	3	7	T	---	---	---	---	---	20	7	4	2.9	---		
Oakland	3	1015.2	1015.6	73	56	64.5	+2.6	91	2	52	1	1	0	54	75	T	-.01	T	0	0	0	7.3	WNW	---	---	---	10	15	6	4.3	---		
Red Bluff	341	999.3	1011.7	101	71	85.7	+.9	110	28	60	1	31	0	52	35	.20	-.17	.15	2	1	0	7.1	SE	26	SE	*8	18	10	3	2.8	90		
Sacramento	17	1011.2	1012.2	92	58	74.7	+1.5	103	27	53	*1	22	0	55	55	.01	+.01	.01	1	1	0	10.1	SW	27	SW	9	25	4	2	2.0	89		
Sandberg	4517	864.9	1013.6	86	64	75.0	---	92	4	53	1	6	0	39	31	.01	---	.01	1	3	0	12.9	NW	---	---	---	24	4	3	1.7	---		
San Diego	19	1010.8	1014.2	75	62	68.3	-.2	84	25	58	*3	0	0	59	76	T	-.03	T	0	0	0	6.3	WNW	17	SW	*14	11	19	1	4.0	70		
San Francisco CO	52			64	53	58.7	+.2	82	2	49	29	0	0	---	---	T	-.02	T	0	0	0	11.0	---	29	W	*23	11	7	13	5.7	52		
San Francisco	1	1014.6	1015.3	71	54	62.3	+3.0	88	2	49	1	0	0	54	80	T	.00	T	0	0	0	13.2	NW	30	NW	28	15	11	5	4.0	---		
Santa Catalina	1568	958.0	1013.2	81	61	70.8	---	92	27	49	7	2	0	---	---	T	---	T	0	0	0	---	---	---	---	---	21	9	1	1.9	---		
Santa Maria	231	1007.1	1015.7	72	52	62.0	---	79	24	44	1	0	0	54	80	T	---	T	0	0	0	5.5	W	*19	WNW	12	10	20	1	4.0	---		
COLORADO																																	
Alamosa	7534	778.0	1019.9	81	48	64.7	---	87	19	39	16	0	0	---	---	1.19	---	.50	9	15	0	---	---	---	---	---	12	13	6	4.8	---		
Colorado Springs	6175	815.8	1016.2	84	56	70.1	---	93	20	42	8	6	0	41	42	1.19	---	.27	15	17	T	11.1	WNW	*36	NNE	23	12	11	8	5.0	---		
Denver	5292	840.5	1014.9	88	59	73.1	+1.9	96	21	43	7	15	0	44	41	1.06	-.41	.73	8	3	0	7.5	S	33	NE	13	9	14	8	5.0	70		
Grand Junction	4849	860.8	1013.1	92	63	77.3	-.4	100	23	57	7	23	0	41	32	.26	-.35	.13	4	8	0	8.8	ESE	39	S	18	15	10	6	4.0	72		
Pueblo	4799	859.5	1014.8	91	59	75.4	+1.2	100	21	45	8	24	0	48	45	1.77	---	1.12	7	9	T	7.9	WNW	38	W	30	11	16	4	4.6	84		
CONNECTICUT																																	
Bridgeport	7	1017.6	1018.6	86	67	76.8	+3.8	94	16	55	1	8	0	66	72	2.37	-1.60	1.33	8	5	0	7.5	WSW	*28	WNW	27	11	11	9	5.2	---		
Hartford	15	1012.2	1017.7	82	65	76.5	+4.8	95	14	44	1	14	0	64	68	2.26	-2.11	1.80	7	3	0	7.0	S	21	S	11	11	19	5.3	80			
New Haven	6	1014.2	1018.0	84	66	75.0	+5.7	92	13	52	1	8	0	---	---	1.43	-2.58	.61	7	6	0	6.0	---	22	E	10	11	10	10	5.2	76		
DELAWARE																																	
Wilmington	73	1015.6	1018.7	90	67	78.4	+2.5	98	23	50	2	17	0	67	71	7.40	+2.91	6.24	8	11	0	6.7	NW	---	---	---	10	12	9	5.1	---		
FLORIDA																																	
Apalachicola CO	13	1017.6	1019.0	88	76	82.0	---	95	1	71	21	9	0	---	---	4.89	-2.85	1.78	13	19	0	8.1	---	---	NW	21	14	12	5	4.2	70		
Daytona Beach	33	1018.0	1019.7	91	73	81.7	+1.3	99	24	68	19	21	0	74	81	1.25	-4.24	.41	10	16	0	8.5	E	*25	NE	3	6	16	9	5.9	---		
Fort Myers	15	1019.0	1019.3	92	73	82.6	+1.2	95	21	67	31	27	0	73	63	5.74	-2.42	1.58	15	22	0	6.4	E	*45	S	31	3	18	10	6.4	---		
Jacksonville CO	18			91	75	83.3	+1.2	98	24	72	20	21	0	---	---	4.56	-2.15	2.81	11	---	0	---	---	---	---	---	---	---	---	---	---	---	
Jacksonville	52	1018.6	1019.7	93	74	83.5	+4	100	24	70	12	24	0	72	72	3.85	-2.86	1.00	11	10	0	9.3	SW	42	NW	24	8	13	10	5.9	73		
Key West CO	5	1016.9	1017.6	89	78	83.3	-.2	92	12	72	18	17	0	---	---	6.59	+3.31	2.01	15	9	0	7.5	---	27	E	16	4	18	9	6.0	67		
Key West	6	1017.3	1017.9	89	78	83.5	+8	93	6	69	17	20	0	74																			



## CLIMATOLOGICAL DATA

Table 2—Continued

JULY 1952

State and station	Elevation (ground)	Pressure		Temperature										Precipitation						Wind		No. of days (sunrise to sunset)		Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
		Station	Sea level	Average maximum		Average minimum		Average	Departure from normal		Highest Date		Lowest Date		No. of days Max. 90° F or above Min. 32° F or below		Average dew point		Average relative humidity		Total		Departure from normal		Greatest in 24 hours		No. of days		Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
				Total	Departure from normal				Greatest in 24 hours	.01 inch or more											With thunderstorms	Total	Max. depth on ground		Average hourly speed	Prevailing direction	Speed	Direction	Date	Clear			Partly cloudy	Cloudy							Sky cover, tenths (sunrise to sunset)	%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														



## CLIMATOLOGICAL DATA

Table 2-Continued

JULY 1952

State and station	Pressure										Temperature										Precipitation										Wind				No. of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	Elevation (ground)	Station	Sea level	Average maximum	Average minimum	Average	From normal				No. of days Max. 90° F. or above	No. of days Min. 32° F. or below	Average dew point	Average relative humidity		Total	From normal		Greatest in 24 hours	No. of days 1.01 inch or more	With thunderstorms	Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
							Departure	Highest	Date	Lowest				Date	Max. 90° F. or above		Min. 32° F. or below	Average dew point				Average relative humidity	Total			Departure from normal	Greatest in 24 hours								No. of days 1.01 inch or more	With thunderstorms	Total	Max. depth on ground	Average hourly speed	Prevailing direction	Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						



## CLIMATOLOGICAL DATA

Table 2-Continued

JULY 1952

State and station	Elevation (ground)	Pressure			Temperature										Precipitation										Wind			No. of days (sunrise to sunset)		Possible sunshine			
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max. 90° F. or above Min. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days .01 inch or more With thunderstorms	Snow, Sleet, Hail	Max. depth on ground	Average hourly speed	Prevailing direction	Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)				
ft.	mb.	mb.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	%	in.	in.	in.		in.	in.	p. h.	p. h.				0-3	4-7	8-10	0-10	%				
SOUTH CAROLINA (Cont'd.)																																	
Charleston	41	1018.3	1020.3	90	72	81.1	+1.1	100	24	58	5	15	0	73	80	5.86	-1.34	2.07	11	16	0	0	6.8	SSW	---	---	---	9	12	10	5.4	---	
Columbia CO	332	1006.8	-----	93	72	82.8	+1.9	106	24	65	2	22	0	---	---	1.50	-3.85	.51	7	9	0	0	6.8	---	38	SW	30	13	11	7	4.6	75	
Columbia	217	1010.8	1019.1	96	71	83.4	-----	107	24	61	3	26	0	68	66	1.17	-----	.67	17	0	0	6.1	ENE	---	---	---	13	8	10	4.9	---		
Florence	146	1013.9	1019.3	93	70	81.6	-----	104	21	62	2	22	0	---	---	1.21	-----	.45	10	12	0	0	---	---	---	---	11	12	8	4.9	---		
Greenville	1006	983.1	1019.5	93	70	81.4	+4.5	104	29	61	10	23	0	66	64	3.60	-1.76	1.63	8	7	0	0	7.3	NE	42	N 22	8	13	10	5.6	82		
Spartanburg	801	990.5	1013.9	91	69	80.4	+1.0	103	29	60	11	18	0	---	---	4.36	-.62	1.12	12	9	0	0	---	---	---	---	9	15	7	5.3	---		
SOUTH DAKOTA																																	
Rapid City	3215	902.8	1014.6	86	57	71.6	+2.4	103	21	46	30	15	0	57	60	1.06	-2.10	.59	8	11	0	0	11.6	SE	72	SW	6	16	10	5	3.8	83	
Sioux Falls	1420	964.8	1015.1	87	60	73.1	-.3	97	27	48	15	13	0	59	64	1.59	-1.56	.91	7	7	0	0	10.9	NNW	*40	W	12	14	13	4	4.2	---	
TENNESSEE																																	
Bristol	1519	966.8	1020.2	91	65	77.7	+1.3	102	29	50	10	18	0	63	66	1.06	-4.04	.47	9	9	0	0	4.7	N	*25	SW	8	13	14	4	4.4	---	
Chattanooga	670	991.9	1019.0	95	68	81.4	+4.0	106	28	54	10	24	0	66	65	3.35	-.90	1.69	8	7	0	0	4.5	SSW	48	NNW	30	13	15	3	4.2	76	
Knoxville	949	985.1	1019.8	93	69	81.1	+4.4	103	28	55	10	23	0	64	62	2.64	-1.72	1.83	10	9	0	0	6.0	W	47	W	30	8	16	7	5.0	57	
Memphis CO	271	-----	-----	94	75	84.2	+3.5	103	27	65	9	26	0	---	---	2.10	-1.08	1.47	5	---	T	T	---	---	---	---	---	---	---	---	---	---	
Memphis	263	1004.1	1018.5	97	71	83.8	+3.9	106	28	59	10	29	0	67	60	2.41	-.59	1.55	5	6	0	0	8.4	SSW	43	S	1	18	9	4	3.8	88	
Nashville	577	999.3	1019.0	96	70	83.1	+4.0	107	27	58	10	27	0	64	58	1.30	-2.58	.47	5	7	0	0	5.2	S	33	NW	8	17	10	4	3.6	77	
TEXAS																																	
Abilene	1752	955.6	1014.8	97	72	84.2	+3.1	104	30	57	8	29	0	60	54	.70	-1.42	.30	3	5	0	0	11.7	SSE	42	N	7	10	11	10	5.2	---	
Amarillo	3590	922.0	1014.3	92	65	78.4	+2.5	99	2	54	8	23	0	56	54	1.36	-.48	.79	9	10	0	0	10.8	S	43	S	13	12	14	5	4.5	89	
Austin	515	995.9	1017.0	95	73	83.7	-.3	100	4	70	26	28	0	70	70	.69	-1.64	.37	5	9	0	0	8.4	S	28	S	22	9	16	6	4.8	88	
Big Spring	2533	928.5	1014.6	95	71	82.8	-.1	103	30	57	8	25	0	59	52	.80	-1.20	.24	10	9	0	0	12.1	S	---	---	---	---	---	---	---	---	
Brownsville	16	1013.5	1015.7	92	75	83.6	0	95	29	71	25	29	0	73	78	1.39	-.88	.86	6	2	0	0	10.2	SE	34	SE	17	12	15	4	4.7	84	
Corpus Christi	40	1015.9	1016.7	93	75	83.8	+2.2	96	4	71	25	28	0	74	81	3.88	+2.35	2.72	8	2	0	0	10.3	SE	40	S	18	11	14	6	5.0	85	
Dallas	487	998.6	1018.7	96	75	85.7	+1.5	102	25	61	9	27	0	67	60	1.66	-1.20	1.26	6	2	0	0	13.4	SE	42	S	18	17	8	6	4.0	77	
Del Rio	957	981.0	1014.5	99	75	86.9	+6	104	17	69	31	31	0	64	58	.39	-2.02	.31	4	3	0	0	8.2	ENE	35	E	16	13	12	6	4.1	79	
El Paso	3920	882.8	1012.0	93	69	81.3	+1.6	100	20	60	9	27	0	56	48	1.88	-.11	.47	9	12	T	0	8.5	SSE	49	E	22	14	12	5	3.9	79	
Fort Worth	588	992.9	1016.8	97	75	86.3	+2.7	104	30	62	8	28	0	64	57	.56	-2.05	.26	6	2	0	0	13.5	SSE	*31	NNE	18	7	6	5	3.9	---	
Galveston CO	7	-----	-----	88	78	82.6	-.8	90	25	71	30	4	0	---	---	9.65	+5.94	5.29	14	---	0	0	---	---	42	SE	17	---	---	---	---	---	
Galveston	7	1017.3	1017.7	88	77	82.5	-.9	90	3	72	11	5	0	76	81	11.84	+8.13	6.83	15	9	0	0	9.6	SSE	---	---	---	---	---	---	---	---	
Houston CO	41	1012.2	-----	91	76	83.5	-.2	95	3	72	9	23	0	---	---	3.42	-.57	1.20	12	13	0	0	---	---	31	SE	18	2	17	12	6.6	66	
Houston	41	1014.9	1017.1	91	75	82.7	+2	95	2	72	17	25	0	73	80	4.33	-.09	2.00	11	7	0	0	9.6	SSE	---	---	---	---	---	---	---	---	
Laredo	500	999.7	1014.7	99	76	87.3	0	103	17	72	9	31	0	71	67	.12	-1.56	1.12	1	1	0	0	15.4	SE	*32	ESE	19	10	14	7	4.8	---	
Lubbock	3238	905.5	1014.6	90	65	77.8	-1.3	97	25	51	8	22	0	59	59	3.24	+1.11	1.64	7	5	T	0	12.2	S	*50	SSE	12	13	11	7	4.6	---	
Palestine CO	491	1000.0	-----	91	73	82.0	-.2	96	3	67	9	25	0	---	---	1.16	-1.52	.80	8	3	0	0	6.6	---	---	---	SE	30	12	13	6	4.8	80
Port Arthur CO	5	1017.3	-----	90	77	83.4	+6	94	4	74	27	20	0	---	---	7.98	+1.04	2.34	18	14	0	0	---	---	50	NE	4	8	17	5	5.3	53	
Port Arthur	5	1017.6	1017.6	90	73	81.4	---	94	3	69	3	23	0	75	86	6.80	-----	2.40	16	17	0	0	---	---	---	---	---	---	---	---	---	---	
San Angelo	1903	949.5	1015.1	94	72	83.1	-.5	101	30	61	8	27	0	61	54	1.10	-.91	.21	7	5	0	0	9.9	SSE	*40	SSE	18	11	15	5	4.5	---	
San Antonio	782	992.2	1016.4	94	73	83.6	-.2	99	4	69	17	28	0	67	67	2.75	+5.8	2.14	5	4	0	0	8.5	SE	47	E	5	9	17	5	4.5	80	
Victoria	109	1011.9	1016.5	94	74	84.0	-.3	99	4	69	9	30	0	73	77	3.16	-.56	1.25	12	7	0	0	---	---	42	SE	4	6	16	9	5.8	---	
Waco	504	998.0	1015.9	95	74	84.6	-1.2	100	30	65	8	26	0	70	67	.77	-1.31	.55	4	6	0	0	9.3	S	---	---	---	---	---	---	---	---	
Wichita Falls	1027	979.3	1015.1	97	73	85.1	-.5	104	25	57	8	27	0	63	56	2.17	-.16	.71	6	7	0	0	10.7	S	*35	NW	13	14	10	7	4.1	---	
UTAH																																	
Midford	5028	848.6	1014.7	91	57	73.7	+2	98	23	44	13	18	0	---	---	.07	-.83	.07	1	7	0	0	---	---	---	---	15	10	6	4.0	---		
Salt Lake City	4222	868.6	1013.3	89	61	74.6	+6	100	23	49	3	13	0	49	44	1.09	+5.7	.84	3	10	0	0	9.6	SE	34	S	24	18	9	4	3.0	8	
VERMONT																																	
Burlington	331	1002.0	1015.2	85	61	73.2	+2.9	93	23	45	30	8	0	61	66	2.14	-1.36	1.20	10	0	0	0	9.0	S	30	NE	19	8	15	8	5.8	6	
VIRGINIA																																	
Cape Henry CO	16	1018.3	1019.0	87	73	79.9	+2.4	97	22	66	3	11	0	---	---	3.01	-2.36	1.61	7	7	0	0	9.9	---	43	NW	29	15	10	6	4.4	74	
Lynchburg	947	986.8	1020.0	89	66	77.7	+1.6	100	28	53	2	17	0	66	72	5.42	+1.21	1.59	12	10	0	0	8.3	SSW	35	N	29	9	12	10	5.5	67	
Norfolk CO	11	1016.3	1019.7	91	73	82.0	+3.3	103	22	66	1	19	0	---	---	4.14	-1.61	2.22	8	8	0	0	8.2	---	31	NW	29	9	12	10	5.5	67	
Norfolk	26	1018.6	1019.7	91	73	82.0	+3.7	103	23	66	3	18	0	68	70	3.11	-2.63	2.22	7	7	0	0	7.8	SW	---	---	---	---	---	---	---	---	
Richmond CO	162	-----	-----	90	70	80.5	+2.0	102	23	58	5	18	0	---	---	2.84	-1.35	1.35	6	0	0	0	---	---	---	---	---	---	---	---	---	---	
Richmond	160	1013.5	1019.4	92	69	80.4	+2.7	103	23	55	2	21	0	67	69	2.71	-----	1.21	8	10	0	0	6.9	SSW	32	SW	23	12	10	5	5.1	77	
Roanoke	1192	978.7	1019.9	91	65	78.3	+2.6	103	28	54	2	20	0	64	66	1.86	-2.32	1.59	10	11	0	0	6.5	W	---	---	---	---	7				



## CLIMATOLOGICAL DATA

Table 2--Continued

JULY 1952

State and station	Elevation (ground)	Pressure		Temperature										Precipitation						Wind				No. of days (sunrise to sunset)		Possible sunshine																																																																																																																																																																																																																																																																																																																																																								
		Station	Sea level	Average maximum			Average minimum			Average			Departure from normal	Highest	Date	Lowest	Date	Max. 90° F. or above	Min. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile			Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																												
				No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days													No. of days		No. of days	No. of days			No. of days	No. of days	No. of days						No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of

Data from airport unless otherwise specified. CO indicates data from city office.

\* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

\* Other dates also.

† Peak gust.

# Max. 70°F. or above for Alaskan Stations.



# HEATING DEGREE DAYS

Table 3

(Base 65°F.)

JULY 1952

State and station	Current season			Long term mean July through this month	State and station	Current season	Current season	Long term mean July through this month	State and station	Current season	Current season	Long term mean July through this month	State and station	Current season	Current season	Long term mean July through this month
	This month	Period July through this month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
ALABAMA					IOWA				NEW JERSEY (Cont'd.)				TEXAS (Cont'd.)			
Birmingham	0	0	0		Burlington	0	0	1	Newark	0	0	1	Austin	0	0	0
Mobile (CO)	0	0	0		Charles City (CO)	1	1	1	Trenton (CO)	0	0	1	Big Spring	1	1	0
Mobile	0	0	0		Davenport (CO)	0	0	1	NEW MEXICO				Brownsville	0	0	0
Montgomery (CO)	0	0	0		Des Moines	0	0	2	Albuquerque	0	0	0	Corpus Christi	0	0	0
Montgomery	0	0	0		Dubuque	0	0	3	Clayton	6	6	1	Dallas	0	0	0
ARIZONA					Keokuk (CO)	0	0		Raton	13	13		Del Rio	0	0	0
Flagstaff	65	65	43		Sioux City	2	2	4	Roswell	3	3	0	El Paso	0	0	0
Phoenix (CO)	0	0	0		KANSAS				NEW YORK				Ft. Worth	0	0	0
Phoenix	0	0	0		Concordia (CO)	0	0	1	Albany	0	0	4	Galveston (CO)	0	0	0
Prescott	0	0	0		Dodge City	1	1	1	Bear Mountain (CO)	0	0		Galveston	0	0	0
Tucson	0	0	0		Goodland	14	14	2	Binghamton	7	7	16	Houston (CO)	0	0	0
Winslow	0	0	0		Topeka (CO)	0	0	0	Buffalo	0	0	15	Houston	0	0	0
Yuma	0	0	0		Topeka	0	0	0	New York (CO)	0	0	1	Laredo	0	0	0
ARKANSAS					Wichita	0	0	0	La Guardia Field	0	0		Lubbock	4	4	0
Ft. Smith	0	0	0		KENTUCKY				Oswego (CO)	3	3	19	Palestine (CO)	0	0	0
Little Rock	0	0	0		Lexington	0	0	1	Rochester	1	1	10	Port Arthur (CO)	0	0	0
Texarkana	0	0	0		Louisville (CO)	0	0	0	Schenectady	0	0		Port Arthur	0	0	0
CALIFORNIA					Louisville	0	0		Syracuse	2	2	13	San Antonio	0	0	0
Bakersfield	0	0	0		Pikeville (CO)	0	0		NORTH CAROLINA				San Antonio	0	0	0
Beaumont (CO)	0	0	0		LOUISIANA				Asheville (CO)	0	0	2	Victoria	0	0	0
Bishop	0	0	0		Baton Rouge	0	0	0	Asheville	0	0		Waco	0	0	0
Blue Canyon	3	3			Lake Charles	0	0		Charlotte	0	0	0	Wichita Falls	0	0	0
Burbank	0	0			New Orleans (CO)	0	0	0	Greensboro	0	0	0	UTAH			
Eureka (CO)	296	296	278		New Orleans	0	0		Hatteras	0	0	0	Milford	0	0	0
Fresno	0	0	0		Int. Airport, Moisant	0	0		Hatteras	0	0	0	Salt Lake City (CO)	0	0	3
Los Angeles (CO)	0	0	0		Shreveport	0	0	0	Raleigh (CO)	0	0	0	Salt Lake City	0	0	0
Los Angeles	30	30	1		MAINE				Wilmington	0	0	0	VERMONT			
Mt. Shasta (CO)	7	7			Caribou	20	20		Winston-Salem	0	0		Burlington	4	4	19
Oakland	36	36	75		Eastport (CO)	56	56	154	NORTH DAKOTA				VIRGINIA			
Red Bluff	0	0	0		Greenville (CO)	18	18	69	Bismarck	14	14	21	Cape Henry (CO)	0	0	0
Sacramento (CO)	0	0	1		Portland	6	6	28	Devils Lake (CO)	26	26	41	Lynchburg	0	0	0
Sacramento	0	0			MARYLAND				Fargo	16	16	20	Norfolk (CO)	0	0	0
Sandberg (CO)	0	0			Baltimore (CO)	0	0	0	Grand Forks	23	23	32	Norfolk	0	0	0
San Diego	1	1	6		Baltimore	0	0		Pembina	27	27		Richmond (CO)	0	0	0
San Francisco (CO)	195	195	200		Frederick	0	0		Williston (CO)	27	27	28	Richmond	0	0	0
San Francisco	85	85	133		MASSACHUSETTS				Akron	7	7	8	Roanoke	0	0	1
San Jose	3	3			Boston	0	0	7	Cincinnati (CO)	0	0	1	WASHINGTON			
Santa Catalina	8	8			Milton	0	0		Cincinnati	0	0		Ellensburg	33	33	
Santa Maria	97	97			Nantucket	1	1	15	Cleveland (CO)	1	1	7	Kelso	71	71	
COLORADO					Pittsfield	8	8		Cleveland	3	3		North Head (CO)	267	267	225
Alamosa	31	31			MICHIGAN				Columbus	0	0	2	Olympia	77	77	
Colorado Springs	23	23			Alpena (CO)	30	30	51	Dayton	0	0	2	Port Angeles	278	278	
Denver	23	23	8		Detroit	2	2	7	Sandusky (CO)	0	0	3	Seattle (CO)	39	39	45
Grand Junction	0	0	1		Escanaba (CO)	45	45	53	Toledo	0	0	5	Seattle	79	79	
Pueblo	10	10	2		Grand Rapids (CO)	8	8	8	Youngstown	9	9		Spokane	28	28	22
CONNECTICUT					Grand Rapids	10	10		OKLAHOMA				Stampede Pass (CO)	246	246	
Bridgeport	0	0			Lansing	8	8	17	Oklahoma City (CO)	0	0	0	Tacoma (CO)	66	66	71
Hartford	0	0	3		Marquette (CO)	48	48	84	Oklahoma City	0	0		Tatoosh Island (CO)	334	334	300
New Haven	0	0	3		Muskegon	17	17		Tulsa	0	0		Walla Walla (CO)	2	2	5
DELAWARE					Sault Ste. Marie	19	19	91	OREGON				Yakima	20	20	9
Wilmington	0	0			Ypsilanti	0	0		Baker (CO)	49	49	54	WEST VIRGINIA			
DIST. OF COLUMBIA					MINNESOTA				Baker	68	68		Charleston	0	0	
Washington (CO)	0	0	0		Duluth (CO)	44	44	74	Burns (CO)	30	30		Elkins	4	4	15
Washington	0	0			Duluth	41	41		Eugene	18	18		Huntington (CO)	0	0	
FLORIDA					International Falls	63	63		Mecham	96	96		Parkersburg (CO)	0	0	1
Apalachicola (CO)	0	0	0		Minneapolis	1	1	11	Medford	1	1	7	Petersburg	0	0	
Daytona Beach	0	0			Rochester	13	13		Pendleton	6	6		WISCONSIN			
Fort Myers	0	0	0		St. Cloud	16	16	23	Portland (CO)	12	12	27	Green Bay	18	18	17
Jacksonville (CO)	0	0	0		St. Paul	0	0	9	Portland	18	18		La Crosse (CO)	0	0	7
Jacksonville	0	0			MISSISSIPPI				Roseburg (CO)	2	2	23	La Crosse	1	1	
Key West (CO)	0	0	0		Jackson	0	0	0	Salem	24	24		Madison (CO)	0	0	8
Key West	0	0			Meridian	0	0	0	Sexton Summit (CO)	60	60		Madison	1	1	
Melbourne	0	0			Vicksburg (CO)	0	0	0	Troutdale	31	31		Milwaukee (CO)	5	5	15
Miami (CO)	0	0	0		MISSOURI				PENNSYLVANIA				Milwaukee	4	4	
Int. Airport, Hialeah	0	0			Columbia	0	0	1	Allentown	0	0		WYOMING			
Miami Beach	0	0			Kansas City	0	0	0	Erie (CO)	0	0	8	Casper	42	42	
Orlando	0	0			St. Joseph	0	0	1	Harrisburg	0	0	1	Cheyenne	58	58	36
Pensacola (CO)	0	0	0		St. Louis (CO)	0	0	0	Park Place (CO)	0	0		Lander	36	36	26
Tallahassee	0	0			St. Louis	0	0		Philadelphia (CO)	0	0	0	Rock Springs (CO)	22	22	
Tampa	0	0	0		Springfield	0	0	1	Philadelphia	0	0		Rock Springs	41	41	
West Palm Beach	0	0			MONTANA				Pittsburgh	0	0	2	Sheridan	40	40	
GEORGIA					Billings	25	25		Reading (CO)	0	0	5	ALASKA			
Albany	0	0	0		Butte	163	163		Seranton (CO)	0	0	6	Anchorage	237	237	
Athens	0	0			Glasgow (CO)	19	19		Williamsport	0	0		Annette Island	245	245	
Atlanta (CO)	0	0	0		Great Falls	62	62		RHODE ISLAND				Barrow	744	744	785
Atlanta	0	0			Havre (CO)	45	45	26	Block Island	0	0	9	Bethel	328	328	326
Augusta	0	0	0		Helena	58	58	43	Providence (CO)	0	0	5	Cordova	434	434	
Columbus	0	0			Kalispell	110	110	66	Providence	0	0		Fairbanks	158	158	168
Macon	0	0	0		Miles City	16	16		SOUTH CAROLINA				Galea	167	167	
Rome	0	0			Missoula	82	82	39	Charleston (CO)	0	0	0	Gambell	686	686	
Savannah	0	0	0		NEBRASKA				Charleston	0	0		Juneau	286	286	
Valdosta	0	0			Grand Island	5	5		Charleston (CO)	0	0	0	Kotzebue	384	384	
IDAHO					Lincoln (CO)	0	0	1	Columbia (CO)	0	0	0	McGrath	209	209	
Boise	13	13	9		Lincoln	1	1		Florence	0	0		Nome	458	458	470
Lewiston	8	8			Norfolk	0	0		Greenville	0	0	0	Northway	204	204	
Pocatello	12	12	12		North Platte	9	9	5	Spartanburg	0	0		St. Paul	661	661	
ILLINOIS					Omaha	0	0	1	SOUTH DAKOTA				Umat	316	316	
Chiro (CO)	0	0	0		Scottsbluff	21	21		Huron	5	5	10	Yakutat	387	387	
Chicago (CO)	0	0	6		Valentine (CO)	14	14	10	Pierre	5	5	4				
Chicago	0	0			NEVADA				Rapid City	21	21	16				
Chicago University	0	0			Elko	6	6		Sioux Falls	5	5					
Joliet	0	0			Ely	20	20		TENNESSEE							
Moline	0	0			Las Vegas	0	0		Bristol	1	1					
Peoria	0	0	2		Reno	4	4	9	Chattanooga	0	0	0				
Springfield (CO)	0	0	0		Tonopah	0	0		Knoxville	0	0	0				
Springfield	0	0			Winnemucca	7	7	11	Memphis	0	0	0				
INDIANA					NEW HAMPSHIRE				Nashville	0	0	0				
Evansville	0	0	0		Concord	2	2	19	TEXAS							
Ft. Wayne	3	3	5		Mt. Washington	373	373		Abilene	0	0	0				
Indianapolis (CO)	0	0	1		NEW JERSEY				Amarillo	0	0	1				
Indianapolis	0	0			Atlantic City (CO)	0	0	1								
South Bend	5	5														
Terre Haute	0	0														

Data from airport unless otherwise specified. CO indicates data from city office.



## SEVERE STORMS

Table 4

JULY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Davidson and Stokes Counties, N.C.	1	2-3 p.m.						\$20,000	Hail	6 square miles damaged.
Latta Community (2 miles southwest of Ada), Pontotoc County, Okla.	1	2 p.m.			0	0	\$ 0	0	Tornado	Tornado funnel, observed by several, caused no damage as it did not reach ground. Reported to have moved northwestward.
Tuska (west of), Atoka County, Okla.	1	Afternoon			1	1			Electrical	Lightning killed man driving cattle; son knocked unconscious, but recovered.
Atchison County, Kans.	1	Afternoon				1	5,000		do	Near Atchison, fire caused by lightning destroyed large barn containing hay, a corn crib, implement sheds, and several pieces of machinery. Farm operator badly shocked.
Vida (near), Mont.	1	5 p.m.	1,760	6				Some	Hail	Up to 25 percent damage to wheat.
McKenzie County, N. Dak.	1	5 p.m.	*6 to 8	20 to 30	0	0	150,000	250,000	Wind, hail, and tornado (probable)	Storm struck in area from Watford City to near Alexander; moved east-northeastward. Most buildings in Watford City had some damage. Small tornado reported west of Watford City which destroyed some buildings and damaged others. Hail completed destruction of many crops in area.
Burleigh, Kidder, Wells, and Stutsman Counties, N. Dak.	1	6 p.m.	*5	50	1	2	400,000	0	Tornado and wind	Tornado struck first about 12 miles southwest of Wier and moved northeastward to beyond Tuttle. This area apparently bore brunt of tornado, but high winds extended area of damage to include parts of Stutsman County as far east as Pingree vicinity and parts of Wells County in vicinity of Fessenden. Red Cross survey indicated 8 homes destroyed and more than 200 damaged, more than 175 other buildings destroyed, and over 600 other buildings damaged in Burleigh and Kidder Counties alone. Tornado followed a very warm and extremely humid afternoon and evening. Demolished entire farms and caused considerable damage in town of Tuttle. Described as worst storm to hit the area. Man killed before he could take refuge in basement of house which was carried away.
Clay and Becker Counties, Minn.	1-2						15,000	10,000	Rain	Excessively heavy rains that accompanied severe thunderstorms flooded some streets and basements and caused washouts on roads and highways. Growing crops damaged in low places.
Lambert Airport, St. Louis, Mo.	2	11:31 a.m.	1,760				150,000		Wind	Severe thundersquall. Southwest wind. Weather Bureau indicator stood at maximum capacity of 75 m.p.h. for about 6 seconds. Across the field control tower indicator showed 100 m.p.h. (maximum for instrument for about 12 seconds. Slight damage to autos and buildings. All major damage was to parked aircraft.
Hankinson, N. Dak.	2	2 p.m.			0	0	5,100	0	Tornado	Small tornado reported to have struck in very local area 2 miles west of Hankinson, apparently moving southward or southeastward as it was reported to have struck again 10 miles south of Hankinson, but caused only minor damage. 1 barn blown over, windmill destroyed, machinery damaged, and 2 calves killed.
Cherokee County, Kans.	2	Early afternoon					2,000		Wind	Damage to several farms southwest of Columbus from severe wind included destruction of 2 hen houses, 2 machine sheds, granary, porch roof, and damage to chimney and roof of house.
Marshall County, Kans.	2	4 p.m.	2		0	0	12,000	0	Wind, possible tornado, and hail	Loud roar heard, but no funnel sighted in storm, which leveled screen of drive-in theatre, ripped roof off concession stand, and moved ticket office. Occurred 2 miles east of Marysville. Storm moved eastward, accompanied by small areas of hail.
Macon County, Ill.	2	Afternoon					500	1,000	Wind, hail, and rain	A severe thunderstorm, accompanied by high winds and hail, caused appreciable damage to soybean fields as well as to trees and utility wiring.
Rock and southwestern Grant Counties, Minn.	2	4 p.m.	217	5	0	0	20,000	See remarks	Wind and tornadoes	A number of small outbuildings demolished, barns, houses, and garages damaged; windmills and farm machinery wrecked or damaged; much poultry and some livestock perished; many trees uprooted or branches broken off. Some damage to growing crops. Reports of several funnel-shaped clouds. Uprooted trees reported lying in same direction. Storm moved south-eastward. On the same date, about 6:05 p.m. several

See footnotes at end of table.



# SEVERE STORMS

Table 4—Continued

JULY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Rock and southwest- ern Grant Counties, Minn.(Cont.)	2									funnel-shaped clouds reported in vicinity of Luverne, Rock County. However, funnel-shaped clouds did not descend to earth and no damage was reported.
Ogden, Ill.	2	5 p.m.					°\$1,000	°	Wind and hail	A thunderstorm blew down a barn and also caused wide-spread damage to utility wiring from falling limbs and trees. Some hail also reported.
Lyon County, Iowa	2	5:50-6:10 p.m.	17	Short	0	0	7,000	See remarks	Tornadoes	4 or 5 funnel clouds observed in area east of Rock Rapids, south of Midland, and north of Edna, which touched ground intermittently. 1 barn badly damaged; minor damage to other farm buildings and crops.
Kingman County, Kans.	2	Evening					4,000		Electrical	Farm home and contents in east-central Kingman County burned after being struck by lightning.
Gray County, Kans.	2	Evening					1,000		do	Chimney of Cimarron School house destroyed by lightning.
Stanton County, Kans.	2						1,200	See remarks	Hail	One 55-acre field of wheat partially destroyed and another field damaged southwest of Syracuse from local hailstorm. Wheat would have yielded 12 to 15 bushels per acre.
Outagamie County, Wis.	2-3	Night					50,000	\$100,000	Rain and wind	Rainfall in County ranged from over 3 to 6 inches. Considerable damage to grains, cut hay, and other crops. Many basements and low streets flooded in Appleton. High winds damaged trees and disrupted power and telephone lines.
Lubbock, Tex.	3	2:15 p.m.					2,500		Wind	Plate-glass windows shattered near heart of Lubbock. Wind estimated at 63 m.p.h.
McMechen, Moundsville, Glendale, and Sherrard areas, Marshall County, W. Va.	3	8 p.m.			1		See remarks	10,000	Electrical and rain	Boy killed while wading in water that overflowed from creek at Glendale. He evidently touched wiring circuit. 2 barns at Sherrard, 1 filled with new-mown hay, destroyed by fire when struck by lightning. Large barn at Sorghum Ridge struck by lightning and burned. Another barn at Wheeling Creek struck by lightning and burned, with a loss of 1,000 bales of hay.
Washington, D.C. and vicinity	4	2-3 p.m.					8,000		Rain, electrical, and wind	Considerable local flooding of streets and basements due to excessive rainfall. Minor damage from lightning and wind.
Harrisburg, Pa.	4	Afternoon				1			Electrical	Man struck and injured by lightning.
Yadkin County, N.C.	5	3 p.m.						3,000	Hail	½ square mile damaged.
Chinle (near), Ariz.	5	4:30-5 p.m.	*7	16	2		5,000		Electrical and rain	Heavy thunderstorm and rain damaged canals and roads in farming area. 2 persons killed by lightning.
Tucson, Ariz.	5	5:02-6:44 p.m.					8,000		Electrical and hail	Severe electrical storm in outlying area southwest, and south of Tucson. Hailstones averaged ½ inch in diameter. Lightning hit and burned building at Sunnyside School; all furnishings destroyed.
Divide and Williams Counties, N. Dak.	5	Night			1		°1,000,000	°	Wind and hail	High winds and hail struck hard in these counties. Divide County may have had 1 of the most destructive storms in its history. An air force man drowned when his boat capsized in Long Creek Reservoir north of Crosby. A Soo-line mail train partially derailed near Ambrose; an oil-drilling derrick blown over causing \$36,000 damage to rig. 5 planes destroyed at Williston Airport. Buildings in widely scattered areas destroyed. Unofficial estimates placed wind speed near 100 m.p.h. at Williston Airport. No reports of tornadoes in area. Hail damage severe, bringing total destruction to many crops in northern Williams County.
Madison County, Fla.	5						°100,000	°	Wind	A windstorm blew down 5 shade-tobacco bars filled with tobacco and damaged several other barns.
Huron and vicinity, S. Dak.	6	1 a.m.					15,000		do	Wind with peak speed of 72 m.p.h. at Huron damaged buildings, window panes, power lines and trees. Less damage reported to other localities northeast of Huron.

See footnotes at end of table.



## SEVERE STORMS

JULY 1952

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Cheyenne, Decatur, Sherman, Graham, Norton, and Phillips Counties, Kans.	6	3-5 p.m.			0	0	\$6,000	\$ 0	Tornadoes and squall line winds	5 tornadoes identified and 3 other instances reported local damage to indicate possible tornadic winds during afternoon of squall line activity in northwestern Kansas: (1) Between 4 and 5 p.m. tornado funnel 12 miles west and 2 miles south of St. Francis appeared to reach ground, but no damage. (2) Funnel cloud south and (3) another northwest of St. Francis sighted aloft. (4) About 3 p.m. tornado from southwest struck northwestern part of Norcat, tore porch from house, knocked off chimneys, and blew out windows; apparently dipped twice more on farms 9 miles north and 12 miles north, respectively, of Norcat to level several barns. (5) At 5 p.m. about 5 miles south-southeast of Ruleton, well constructed barn completely destroyed. Damage definitely indicated a tornado. (6) On farm north of Hill City 2 small buildings picked up by wind and deposited on hog shed. (7) Southeast of Lenora trees torn up and windmill blown down. (8) Near Logan barns destroyed on 2 farms and in town of Logan plate-glass windows shattered and trees uprooted. Damage by tornadoes, \$3,000; by wind, \$3,000.
Phillips County, Kans.	6	Afternoon					800		Electrical	4 cows and 2 calves killed near pasture fence in eastern Phillips County by stroke of lightning.
Smith County, Kans.	6	Afternoon					3,000	See remarks	do	Fire caused by lightning destroyed double granary with 1,000 bushels of wheat and 800 bushels of corn near Smith Center.
Southern Sioux and northern Plymouth Counties, Iowa	6	4-10 p.m.						1,000,000	Hail and rain	Estimated 600 farms with hail damage, 200 on which severe damage; some crops a total loss. From 4 to 5 inches of rain reported, with hail in Plymouth County. Near Hinton farmer lost 70 hogs in high water of Perry Creek.
Martin County, N.C.	6	5 p.m.						9,000	Hail	1/3 square mile damaged.
Phoenix, Ariz.	6	5:50-11 p.m.					2,000		Electrical, winds, and rain	High winds preceded electrical storm. Gusts to 45 m.p.h. from northeast recorded at Sky Harbor Airport. Winds whipped power lines together, blew down trees against power and telephone lines, broke plate-glass windows. Most damage in northeastern and western part of Phoenix. Trunk telephone cable to Litchfield Park damaged. 10 telephone poles downed in Phoenix area.
Ness County, Kans.	6	Evening					800		Electrical	5 head of cattle killed by lightning near Utica.
Estancia, N. Mex.	7	1:30-7:30 p.m.					See remarks	See remarks	Rain and flash flood	Flash flood from 0.65 inch to 3.00 or 4.00 inches of rain along mountains west of city. Damaged streets, bridges, and highways. Considerable damage to crops especially pinto beans where rainfall heaviest.
Mustang (5- 3/4 miles west and 2-3/4 miles south of), Canadian County, Okla.	7	1:30 p.m.	50	3	0	0	0	0	Tornado	Tornado moved through grassland; advanced northeastward until it came to a draw, when it turned due east.
Gracemont, Caddo County, Okla.	7	3 p.m.			1				Electrical	Woman hanging out clothes killed by lightning.
Elk County, Kans.	7	Afternoon					1,500		do	Barn, hay, and tractor northeast of Howard destroyed by fire produced by lightning stroke. Man and child in barn dazed.
Baltimore, Md.	8	A.m.-p.m.			1		See remarks		Rain	One boy drowned in flood waters. Traffic tie-ups numerous. Cellars flooded.
Ft. Leonard Wood, Mo.	8	Afternoon					2,600		Wind and rain	Roofs damaged and smoke stacks blown down.
Louisville, Ky.	8	4:20 p.m.					20,000		Electrical	Lightning struck and set building afire, destroying materials in it as well as a large part of structure.
Forsyth County, N.C.	8	Night					5,000		do	8 cows, valuable breeding stock, killed by lightning.
Wayne to Lehigh Counties, Pa.	8 to 10				4		500,000		Rains	Heavy rains, amounting to more than 9 inches in some areas in 2 days, resulted in flash floods on smaller streams in area. Dyberry River severely damaged shoe factory near Honesdale when it flash flooded. At Hawley, an earthen dam washed away, and stretch

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JULY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Wayne to Lehigh Counties, Pa. (Cont.)	8 to 10									of railroad tracks wrecked. Woman and 2 small children washed out of their home and drowned by flash flooding. Man drowned while attempting to recover boats that had drifted away. Lackawaxen River rose above flood stage at Hawley, flooding cellars. Extremely heavy rains caused much damage by starting landslides, washing out roads, and eroding gardens and farm lands. Along Perkiomen Valley damage to property amounted to \$31,000.
Durham, Edge- comb, Pitt, and Warren Counties, N.C.	9	1-3 p.m.					\$2,000	\$60,000	Hail and wind	7 square miles damaged.
Grand Forks County, N. Dak.	9	Afternoon			0	0	°100,000	°	Winds, hail, and tornado	High winds and hail struck area about 25 to 40 miles long from northwest to south of Grand Forks causing considerable damage. 100 percent loss to crops due to hail. Some hail still on ground 5 hours after storm. Considerable damage to buildings with a few destroyed. Small tornado observed which just briefly touched ground, destroying a 30 x 38 foot barn as it carried it 50 to 100 feet into air. A haystack against 1 wall of barn untouched. Building appeared to explode.
Polk, Nor- man, Clay, and Otter- tail Coun- ties, Minn.	9	4 p.m.	*4	60	1		10,000		Wind, rain, hail, and electric- cal	Several outbuildings wrecked; barns, houses, and buildings damaged. Thunderstorm moved southeastward. Heavy rains and hail accompanied storm. On this same date, man killed by lightning in vicinity of Fergus Falls, Ottertail County.
Polk, Nor- man, and Clay Coun- ties, Minn.	9	4 p.m.	*4	60			15,000	250,000	Hail and rain	Heavy hail caused much damage to growing crops and considerable damage to real property. Some hailstones size of golf balls reported. A number of fields of grain damaged from 50 to 100 percent. Much poultry perished. Thunderstorm moved southeastward. Heavy rains accompanied storm.
Washington, D.C. and vicinity	9	5-7 p.m.					5,000		Rain and electric- cal	Considerable local flooding of streets and basements due to excessive rainfall. Minor damage from lightning.
Baltimore, Md.	9	P.m.			1		See remarks		do	Man struck by lightning under tree at golf course. Highways and cellars flooded. Traffic tied up. Fields and farmyards inundated at Brooklandville. Lawns washed away. Autos stalled. Water in storm sewers backed up. 4 houses struck by lightning, sustaining moderate damage.
Upperville, Va.	10	4 p.m.					See remarks		Electric- cal	Bold, 1951 Preakness winner, struck by lightning and killed at Brookmeade Stables.
Butte, Mont.	10	6:30 p.m.	1,760	8			1,500		Electric- cal and rain	Some flooding from heavy shower.
Meeker and McLeod Coun- ties, Minn.	10	8 p.m.					5,000	25,000	Hail	Some hailstones measured 1½ inches in diameter. Thunderstorm moved northeastward.
Minneapolis, St. Paul, and vicini- ty, Minn.	10	8:55 p.m.					1,000		Electric- cal	A number of places struck by lightning.
Lordville- Callicoon area, N.Y.	10								Rain and flash flood	Heavy thundershowers caused flash floods that washed out several bridges, damaged others, washed out and damaged highways, and flooded and undermined buildings; derailed 31 freight cars, many destroyed; eroded farm land.
Faribault and vicini- ty, Minn.	11	A.m.					5,000		Wind and rain	A number of trees uprooted or branches broken off; power and communication lines disrupted; considerable minor damage to property. Heavy rains accompanied thunderstorm.
Marinette County, Wis.	11	Afternoon					10,000	25,000	Hail and rain	Hail size of golf balls damaged crops in County, especially near Crivitz. Heavy rain caused some flooding in Marinette.
Butte, Mont.	11	1 p.m.	*2	10			5,000		Electric- cal and rain	Damage due mainly to flooding basements.
Wichita, Kans.	12	2 p.m.			1				Electric- cal	Boy killed when struck by lightning while hunting frogs from bridge. 2 other boys stunned, but uninjured.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JULY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Southeastern Marshall and south- western Nemaha Counties, Kans.	12	3-5 p.m.			0	0	\$15,000	\$ 0	Wind, possibly torna- does	At least 2 severe squall line windstorms with some tornadic characteristics formed with spotted thun- dershowers and some hail occurring over a wider area in northwestern Kansas. At 3 p.m. storm de- veloped on north edge of Vermillion and moved 6 miles north-northeastward, leveling 3 barns and a garage, twisting buildings from foundations, and toppling corn cribs. Second storm at 5 p.m. from southwest on west side of Corning wrecked barn and car shed, picked up 3 government storage bins, carrying 1 for $\frac{1}{2}$ mile, and blew over trees and wire
Goshen Coun- ty (north- western part), Wyo.	12	Evening	*2	15				Light	Hail	Damage confined to fall wheat.
Coleman (near), Wis.	12	Night					10,000		Electri- cal	Barn and contents burned.
Atchison County, Kans.	13	2 a.m.					2,000		do	10 cows and Guernsey bull killed when lightning struck tree where cattle had taken refuge from storm, in northern Atchison County.
Kansas, southeast- ern portion	13	Afternoon					2,200		Wind, hail, and possibly tornado	Numerous instances of minor damage from wind, accom- panied in some areas by light hail, occurred in Allen, Bourbon, Crawford, Neosho, and Miami Coun- ties. Roofs blown off, small buildings wrecked, and at a cemetery near Pittsburg damage to trees and tombstones indicated a "twisting" wind in small area.
Crescent (7 miles west and 1 mile south of), Kingfisher County, Okla.	13	1 p.m.	10	1	0	0	500	0	Tornado	Tornado struck farmstead, damaging trees and shed. Narrow path between house and barn. Moved south- eastward.
Okarche (south of), Canadian County, Okla.	13	2 p.m.	1,320	3/4			800		Wind	Damage to buildings on 2 farms.
Carnegie and vicinity, Caddo Coun- ty, Okla.	13	2 p.m.					500		Electri- cal	Lightning struck and damaged farm house near Car- negie. Several television sets in Carnegie burned out.
Claremore (3 miles west of), Rogers County, Okla.	13	Afternoon	Nar- row	Short	0	0	2,000	0	Tornado	2 barns demolished.
Cheyenne County (scattered areas), Nebr.	13	2:30-4 p.m.					50,000	100,000	Hail	Crop damage mostly to wheat.
Capulin, N. Mex.	13	3-4 p.m.	*4				1,000		Wind, hail, rain, and electrical	49 head of newly shorn sheep lost.
St. Louis, Mo.	13	4 p.m.				3	10,000		Wind, rain, and elec- trical	3 persons injured by lightning, none seriously. Roofs damaged, numerous trees uprooted, and power and telephone lines broken. Damage fairly light, but widespread.
Superior (northwest of), Nebr.	13-14	5 p.m.- 1 a.m.	880					Small	Hail and rain	Some damage to corn and alfalfa seed crop.
Cloud Coun- ty, Kans.	13	5 p.m.					5,000		Electri- cal	Home struck by lightning near Miltonvale and burned to ground.
Geary Coun- ty, Kans.	13	Evening					1,000		do	Barn and hay 6 miles west of Junction City burned after being struck by lightning.
Kansas, northwest- ern and north-cen- tral por- tions	13	8-10 p.m.					5,000	3,500	Wind and hail	Wind and hail of sufficient intensity to cause loss- es occurred in several areas during a general storm over northwestern and north-central Kansas, includ- ing the following: Wind and hail about 8 p.m. across Cheyenne County, heaviest northwest to northeast of St. Francis, damaged crops, roofs, and windows; wind damage to at least 1 farm in Sheridan County; heavy hail at 10 p.m. near Jewell which ruined corn, alfalfa, and gardens and broke windows; hail at Clay Center at 8 p.m.; lighter hail and wind damages in Russell and Geary Counties. Property damage by wind, \$3,000; by hail, \$2,000. Crop damage by hail, \$3,500

See footnotes at end of table.



## SEVERE STORMS

Table 4-Continued

JULY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Albin (near), Wyo.	13	Evening						Light	Hail	Light damage to growing crops.
Russell County, Kans.	13	Night					\$500		Electri- cal	3 cows near Lucas killed when struck by lightning.
Franklin and vicinity, Nebr.	13	11-11:45 p.m.	*4	5			8,000	\$1,300	Wind	Several buildings moved from foundations. Shingles blown from buildings. Trees uprooted. Crop damage mostly to corn.
Boonville, Ind.	14	1 p.m.	*1½				2,000		Wind, rain, and electrical	Damage 100 percent by wind. Trees uprooted. TV antennae down. Roofing torn loose.
Patrick County, Va.	14	2-3 p.m.	1,760	5				80,000	Hail	Tobacco, corn, orchards, and gardens badly damaged; some tobacco completely destroyed in eastern sections.
Edgecomb, Forsyth, Cumberland, Nash, Lee, Hoke, Hen- derson, An- son, Rich- mond, and Davidson Counties, N.C.	14	3-5 p.m.					6,000	130,000	Hail and wind	20 square miles damaged.
Albuquerque, N. Mex.	14	3-4 p.m.					53,000		Rain and flash flood	Washed out highway shoulder west of Albuquerque, and lawns and streets in other sections of city. Rain at airport station measured 0.44 inch. Rainfall west of river estimated 2.00 inches in about 1 hour. Several buildings flooded.
Deming (8 miles east of), N. Mex.	14	4 p.m.	1,760		1				Electri- cal, rain, and hail	Lightning killed 1 man.
San Cristo- bal, N. Mex.	14							See remarks	Hail	Damaged gardens, fruit, and alfalfa.
Eastport, Maine and lower St. Croix Valley	14	5:30-6:30 p.m.	1,760 (in East- port)	2 to 3 (in East- port)	0	Sev- eral	50,000	1,000	Electri- cal, wind, and tornadoic clouds	Strong winds with heavy rain and light hail (briefly). Storm buffeted Woodland, Calais, Lubec, and Eastport area, with most damage in Eastport, where Weather Bureau Office recorded 1-min. speed of 61 m.p.h. and estimated 30 percent higher gusts from 6 to 6:05 p.m. Trees blown down, utility lines downed, and cars and buildings damaged. Several buildings struck by lightning; 1 barn burned down with loss of stored crops and livestock. \$25,000 damages in East- port alone, where funnel-shaped clouds reported. Called worst summer storm in 50 years in area.
Ledger, Mont.	15	1 p.m.	880	40				Some	Hail	Hail 1/4 to 1 inch in diameter damaged crops; average of 30 percent.
Valier (near), Mont.	15	2 p.m.	1,760	20				100,000	do	Heavy small hail.
Conrad (near), Mont.	15	2:30 p.m.	*3	45				100,000	do	Heavy hail 1/4 inch in diameter; damage to grain.
Shelby, Mont.	15	3 p.m.	*2	9				20,000	do	Pea-sized hail damaged wheat.
Durham, For- syth, and Yadkin Coun- ties, N.C.	15	3-4 p.m.					10,000	110,000	Hail and wind	11 square miles damaged.
Sheep Creek, McCone Coun- ty, Mont.	15	Afternoon	*2	10				200,000	Hail and electri- cal	Some damage to roofs; some poultry killed. Electric power failures due to lightning.
Glasgow and vicinity, Mont.	15	Afternoon	*15	24				250,000	Hail	Some roofs damaged.
Fort Benton, Mont.	15	Afternoon	880	10				15,000	do	About 5 percent damage to 600 acres of grain.
Hell's Half- Acre Com- munity, Williams- burg Coun- ty, S.C.	15	Afternoon	800	3			8,000	do	do	Stones as big as "goose eggs" battered crops and damaged farm structures and animals.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JULY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Porcupine Creek, Val- ley County, Mont.	15	4 p.m.	*15	20				\$500,000	Hail	Hailstones $\frac{1}{2}$ to $\frac{3}{4}$ inch in diameter caused severe damage to wheat, 100 percent to 64,000 acres.
Wood County, W. Va.	15	8:30 p.m.					See remarks		Electri- cal, rain, and wind	Temporarily disrupted electrical circuits of Monongahela Power Company; damage very light. CAA Weather Station at Wood County Airport reported occasional gusts of 55 m.p.h. and a few as high as 76.
Deming (5 miles north- west of and running due south), N. Mex.	15	9-11 p.m.	*2-3	5 to 6				100,000	Rain and hail	Cotton crop damaged. $3\frac{1}{2}$ inches of rain in $1\frac{1}{2}$ hours. Houses flooded; new deep-freeze loaded with 300 pounds of meat upset, ruining much of meat.
San Cristo- bal, N. Mex.	15								Hail	Damaged gardens, fruit, and alfalfa. Hailstones measured $\frac{3}{4}$ inch in diameter. Duration of storm 15 minutes.
Raton, N. Mex.	15								Electri- cal	Transformer burned out, fuses knocked out, and meter burned. 0.33 inch of rain in 30 minutes.
Endicott, N. Y.	15					1			Wind	Thunderstorm gusts of 44 m.p.h. blew down trees and interrupted utility services in Endicott area. Boy injured by falling tree.
Boaz, Ala.	15 and 31						\$300		Electri- cal	Julia Street Church in Boaz struck by lightning on 15th and 31st.
Stevens, Pope, Stearns, Morrison, Cass, and Mille Lacs Counties, Minn.	16-17	7-12:45 p.m.	*2	110		2	40,000	See remarks	Wind, hail, and rain	Thunderstorm moved northeastward, accompanied by strong wind, heavy rain, and hail. A number of small buildings and a brewery warehouse demolished; corrugated metal fence surrounding a drive-in-theater wrecked; houses, garages, barns, buildings, and farm machinery damaged; many trees uprooted; poles and wires down; growing crops damaged.
Minnesota, east-cen- tral coun- ties	16-18				1	0	754,000	715,000	Rain, flood, and tor- nado	Excessively heavy rains that accompanied a tornado and severe thunderstorms flooded basements, streets, roads, and highways. Railroad tracks washed out and 3 freight cars derailed. Many acres of farm lands in low places inundated and growing crops damaged. Mississippi River at Aitkin and a number of other small streams overflowed their banks. Man drowned when his automobile left highway and overturned in water-filled ditch.
Texarkana Airport, Ark.	16	2:18 p.m.	5	4	0	0	°12,150	°	Tornado	Funnel first struck Rondo Community 3 miles southeast of Texarkana Airport, then moved northwestward over airport to a point 1 mile northwest of airport. Several barns and outhouses destroyed, and hangar at airport practically destroyed; 1 house in Rondo damaged; 1 horse killed. Crop damage slight. Damage includes loss from the 4:05 p.m. storm of same date listed below. Barograph trace indicates possibility that another tornado may have passed near station at 3:15 p.m., but no other evidence observed.
Texarkana Airport, Ark.	16	4:05 p.m.			0	0	See remarks		do	Funnel covered practically same route as the one at 2:18 p.m., but swerved slightly, missing buildings at airport. Damaged 1 house in Rondo; destroyed a garage and several barns near Rondo. Tore down 50 yards of fence and broke power lines at airport. Damage estimate included with that of 2:18 p.m. storm.
Logan Coun- ty, W. Va.	16	4:25-5:05 p.m.				4	See remarks		Rain	Man rather badly injured when truck he was driving struck bridge near Braeholm. 3 women slightly injured when their car ran into ditch near Henlawson Bridge. These accidents attributed to heavy rain-storm. Approximately 600 telephones out of order. Several trees blown into power lines in Big Creek Section, resulting in cut-off of electricity for about 10 hours.
Turpin, Beaver Coun- ty, Okla.	16	5:30 p.m.	30	Short	0	0	10,000	0	Tornado	Elevator tower in town demolished.
Parkersburg, W. Va.	16	5:40 p.m.					See remarks		Electri- cal, rain, and wind	2 buildings struck by lightning; damage slight. Few limbs of trees blown off, partially blocking roadways; awnings torn.
Frederick to Baltimore, Md.	16	P.m.		50			1,000		do	Lightning struck several buildings, causing \$800 damage at one. 1 roof torn off by wind. Small branches torn off trees. Storm drains clogged.

See footnotes at end of table.



# SEVERE STORMS

Table 4—Continued

JULY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Waynesboro- Greencastle, Pa.	16	Evening				1	Several hundred		Electri- cal and rain	Boy struck and suffered burns from lightning near South Mountain. Lightning uprooted a tree, ripped channel through a macadam road, and damaged a house. Power service out in some sections for over 6 hours. In Greencastle heavy local rains briefly flooded low spots.
Palisade (vicinity of), Minn.	16	7 p.m.	333	10	0	0	\$50,000	See remarks	Tornado (possib- le) and rain	A house, barn, garage, trailer home, and 2 automo- biles demolished; houses, barns, buildings, auto- mobiles, and farm machinery damaged. Some livestock injured. Extensive damage to power and communica- tion lines; much grain and corn lodged; many trees uprooted or branches broken off. No funnel-shaped cloud reported, but uprooted trees were lying on ground in different directions. Spears of hay found driven into power poles. Storm moved northeastward. Heavy to excessive rains accompanied storm.
Silver Spring, Md.	16	9:30 p.m. —midnight					500		Electri- cal	
Agawam, Mont.	17	11:30 a.m.	*3					Some	Hail	Pea- to marble-size hail damaged grains 10 to 20 percent.
Chinook, Mont.	17	Noon	*3	12				20,000	do	Some damage to roofs and windows from hail up to 1-1/4 inches in diameter.
Rudyard and Joplin, Mont.	17	Afternoon	*2	50				160,000	do	Hail size of ping-pong balls damaged wheat and barley severely.
Waltham, Mont.	17	1 p.m.	*3	12				Some	do	Hail up to marble-size damaged wheat up to 78 per- cent.
Peerless, Mont.	17	2:30 p.m.	*3½					50,000	do	Hail 3/4 inch in diameter damaged grain.
Lonesome Lake, Mont.	17	3 p.m.	*3	20				Some	do	20 to 100 percent damage to wheat and hay.
Highwood, Mont.	17	3:30 p.m.	1,760	12				Some	do	Marble-sized hail damaged wheat up to 15 percent.
Montgomery City (near), Mo.	17	4:15 p.m.			0	0	6,000	0	Tornado	Small tornado destroyed barn and several other farm buildings. All damage confined to 1 farm.
Dinwiddie County, Va.	17	4:30 p.m.					6,000		Electri- cal	Barn and contents destroyed near Sutherland; the third barn to be destroyed in this manner in county in 3 weeks.
Wibaux, Mont.	17	5:30 p.m.	*3	13				Severe	Hail	Hail 1/4 to ½ inch in diameter caused 50 to 100 per- cent damage to wheat and feed crops.
Lynchburg, Va.	17	11 p.m.					Consider- able		Rain	Department store flooded when heavy rain poured through an unrepaired portion of roof and drenched areas on 3 floors and basement. "Many thousands" of dollars damage.
Mercer, Rock Island, Whiteside, Ogle, Win- nebago and McHenry Counties, Ill.	17, 18, 19				2	71	811,000	96,200	Rain and wind	Series of locally heavy thunderstorms occurred. Ma- jority of damage resulted from flash flooding of small streams. 2 fatalities resulted from drowning; 1 residence completely destroyed; 251 homes damaged, together with 43 other buildings.
Wisconsin, especially eastern portion	18-19	A.m. of 18th and 19th					500,000	1,000,000	do	Rainfall ranged from 3 to almost 6 inches. Low fields and basements flooded. In Milwaukee approx- imately 1,000 homes suffered an average of \$200 flood damage per home. Damage to crops in Manito- woc County estimated at more than \$200,000.
Bloserville area, Pa.	18	Afternoon					Several thousand		Electri- cal and hail	Lightning struck and destroyed barn, including har- vested crops and farm machinery stored therein. It also destroyed straw stack on another farm. A num- ber of cattle killed by lightning. Hail severely damaged corn in area.
Ohio County, W. Va.	18	6 p.m.					See remarks		Electri- cal	Barn almost completely destroyed, along with its contents of farm equipment and this year's crop of baled hay and straw. Minor damage to Warwood Grade School by bolt of lightning.
Buffalo (near), Wyo.	18	6:30 p.m.					Light	Light	Wind	Wind charger and roof of 1 building destroyed.
Durham Coun- ty, N.C.	18	8:30 p.m.						1,000	Hail	1 square mile damaged.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JULY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Tucson, Ariz.	18				1				Heat	A laborer collapsed and died of heat stroke, according to ex-officio coroner.
James River near Fort Eustis, Va.	18				1				Electrical	Soldier electrocuted by lightning while operating army boat.
Kinsey, Mont.	19	1 a.m.	1,760	2				\$20,000	Hail	Hail up to 3/4 inch in diameter damaged grains, and broke 13 windows in school building.
Glenwood and vicinity, Minn.	19	Noon					\$5,000	See remarks	Electrical, hail, wind, and rain	Buildings damaged; trees uprooted; power and communication lines disrupted; growing crops damaged. Thunderstorm moved southeastward. Heavy rains, hail, and severe lightning accompanied storm.
Glenwood and vicinity, Minn.	19	Noon					1,000	5,000	Hail	Moderate hail that accompanied a severe thunderstorm caused considerable damage to growing crops and some damage to real property. Storm moved southeastward.
Glenwood and vicinity, Minn.	19	Noon					1,500		Electrical	A number of places struck by lightning.
Richmond and Scotland Counties, N.C.	19	3-6 p.m.					3,000	50,000	Hail and wind	6 square miles damaged.
Golden Valley County, N. Dak.	19	Afternoon			1	3	°100,000	°	Winds, hail, and tornado	Tornado struck northern Wibaux County in Montana and continued into Golden Valley County, N. Dak. Baby killed and its parents and another child injured. It is not clear from reports whether this family lived in North Dakota or Montana. High winds also struck in southern part of county destroying some buildings, damaging many more and even ripping apart bales of newly cut hay. In tornado area windmill appeared to have been neatly sawed off about 3 inches above cement block it was sitting on.
Newville area, Pa.	19	Afternoon					9,500		Electrical	Lightning fired barn near Newville, destroying barn, livestock, grain, and farm equipment.
Baker, Mont.	19	4:30 p.m.	*10	50	0	0	100,000	Some	Tornado	Roofs blown off; automobiles damaged by flying debris. Farmers claimed rain benefits offset wind damage to crops. Storm moved into North Dakota.
Seaton, Ill.	19	5 p.m.			0	0	1,000		do	During series of thunderstorms referred to at Mercer, Rock Island, Whiteside, Ogle, Winnebago and McHenry Counties, small tornado reported from Seaton. Principal damage on 2 farms where windmill overturned, small buildings destroyed, and trees uprooted.
Corry area, Pa.	19	6:30-7 a.m.	25	10 hit- skip	0	0	Several thousand	Several hundred	do	Tornado first struck in vicinity of Beaverdam; ripped off church belfry, dropping it 2,000 feet away; tore half of metal roof from church and twisted building on its foundation. It hit-skipped through wooded sections between Beaverdam and Corry and damaged corner of factory building after pulling out 6 large windows.
Logansport, Ind.	19	6:45 p.m.					10,000		Rain, wind, and electrical	Streets and basements flooded. Trees and wires downed. Transformers struck by lightning.
Wibaux, Mont.	19	7:30 p.m.	*10	15	1	2	200,000	126,100	Tornado and hail	1 large farm establishment totally destroyed; many roofs blown off. Scattered character of population prevented much greater damage.
Clara City (vicinity of), Minn.	20	1:45 p.m.	*2	13			15,000		Wind, rain, and hail	Barn demolished, and several barns moved from their foundations; buildings damaged. Heavy rains and hail accompanied thunderstorm which moved from west.
Clara City (vicinity of), Chip- pewa County, Minn.	20	1:45 p.m.	*2	13			20,000	100,000	Hail	Severe thunderstorm moved eastward, with heavy hail, causing much damage to growing crops and considerable damage to real property. Some of hailstones measured 6 inches in circumference. Some fields of growing crops reported a total loss.
Sedona-Oak Creek and Canyon area, Ariz.	20	4-4:40 p.m.	5	6	1		6,000	5,000	Electrical, hail, wind, rain, and flash flood	Heavy rain with hail in narrow Oak Creek Canyon sent high water down creek and caught several cars and swimmers without warning at Baldwin Crossing, 8 miles south of Sedona. Baby washed from car and drowned. Rise in creek reported 5 feet at height of runoff. 2 cars wrecked, truck damaged. Roads washed out. Apple and peach trees damaged; fruit bruised. Hail averaged 1/2 inch in diameter, largest hail 1-1/4 inches in diameter. Damage by hail, \$2,900; by wind, \$100; by rain, \$8,000. Storm moved from west-southwest.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JULY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Winslow, Ariz.	20	5:45-6:10 p.m.					\$5,000		Electrical and hail	Local storm moved from northwest. Hail averaged 1/4 inch in diameter; largest size of pullet eggs. Damage confined to roofs of houses.
Ewen and Bruce Cross- ing, Mich.	20	Evening					°40,000	°	Wind	Several barns damaged or destroyed, and house moved from foundation.
Ironwood, Mich.	20	Evening							Wind and rain	High winds interrupted utility services. Heavy rains resulted in flooding of basements and road washouts.
Mackinaw City, Mich.	20-21								Wind and electrical	Wind blew down power lines. 2 houses burned as the result of lightning.
Standish, Mich.	20-21						10,000	\$2,000	Electrical and rain	Lightning struck house, resulting in loss by fire of about \$7,000. Heavy rains caused flash floods, inundating some crops.
Philadel- phia- Allentown area, Pa.	20						°Several thousand	°	Electrical and wind	A series of thunderstorms swept across area, damaging some buildings, felling scores of trees, and damaging utility lines and some crops. Near Bristol roof ripped off 1 building and blown into wall of another. In Palmer Township 9 homes unroofed. In South Easton 2 cars damaged by falling trees. Highways in area littered with storm-tossed debris. In Philadelphia 4 trolley cars struck by lightning, but no injuries reported. Stone steeple crashed 60 feet from top of church.
Pennsylvania, central portion	21	Early morning				4	50,000		Electrical, rain, and wind	Lightning fired barn northeast of Lewiston, destroying cattle, chickens, grain, and farm implements. Near Mt. Pleasant lightning struck a man, knocked him 15 feet, and inflicted shock and first-degree burns. Near Reading National Guardsman struck by bolt of lightning, thrown 20 feet, and suffered partial paralysis. At Indiantown Gap soldier struck by lightning and suffered shock and severe burns of body. Lightning also set utility pole afire and disrupted telephone service. Woman injured when tree toppled on her at Laurel Lake. Same series of thunderstorms struck Berwick area with damages amounting to tens of thousands of dollars. Heavy rains washed out macadam and dirt roads in Hobbie-Briggsville-Wapwallopen area and 4 bridges, as well as washing many fields and gardens. Total loss in area estimated at \$20,000. In Berwick rains briefly flooded low areas, while lightning severely disrupted power and telephone services, and high winds felled scores of trees, damaged many roofs, broke windows, and damaged crops. Power out in many sections for 4 to 10 hours.
Hamilton County (southwest- ern part), Kans.	21	3 p.m.	50	1/4	0	0	1,000	0	Wind, possibly tornado	Barn and chicken house destroyed on farm 15 miles southwest of Syracuse. Hog and several chickens killed and fence torn out by debris. Damage indicated winds of tornadic nature, but no actual funnel sighted.
Bradford and Sullivan Counties, Pa.	21	3:30-4 p.m.					7,000	Several hundred	Electrical and wind	Lightning struck and fired a barn, with barn and contents complete loss. High winds attending thunderstorm blew down several trees, flattened corn fields, and knocked over signs.
Sheridan- Gove County line and western Graham County, Kans.	21	5 p.m.	25	2-3	0	0	5,000	20,000	Hail, wind, and possibly tornado	Ominous appearing black cloud first noted about 2:30 p.m. in southwestern Sheridan County. Wind damage, possibly tornadic, west of Grainfield to several farms included destruction of barns, sheds, and roofs. Heavy hail accompanied wind in some areas, extensively damaging feed and corn crops. In west-central Graham County 2 buildings destroyed and others damaged on 1 farm. Property damage by wind; crop damage by hail.
Wilkes-Barre area, Pa.	21	Evening							Rain and winds	Sudden heavy rains briefly flooded low spots. High winds blew down trees and branches, blocking some roadways. A few wash-outs reported on sloping properties.
Phillips County (eastern part), Kans.	21	Evening					10,000		Wind and hail	New tile quonset-type cattle shed and other smaller buildings destroyed and trees blown over by severe wind, and windows broken by hail east of Phillipsburg. This and the 2 previously described storms of this date were probably successive developments along same squall line. Damage by wind, \$9,500; by hail, \$500.
Norwalk, Hu- ron County, Ohio	21	Evening					4,000		Electrical and rain	Lightning destroyed doctor's office and adjoining rooms. Torrential rains flooded basements and streets and cut off electrical service.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JULY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Duluth and vicinity, Minn.	22	12:25 a.m.	*3	10			\$150,000		Wind, rain, and electrical	Hundreds of trees uprooted or branches broken off; a number of automobiles struck by falling trees; many buildings, lawns, sidewalks, etc. damaged; an airplane wrecked and several others damaged; power and communication lines downed. Thunderstorm moved from west. At Duluth Airport, wind attained an extreme speed of 72 m.p.h. with gusts to 90 m.p.h. from west-southwest at 12:23 a.m. Severe lightning, thunder, and heavy rains accompanied storm and caused considerable damage.
Bradford and Sullivan Counties, Pa.	22	Early morning					Tens of thousands		Electrical and wind	More than 40 head of cattle, valued between \$300 and \$500 each, killed by lightning on various farms. Near Sayre, lightning struck barn and silo, causing \$2,500 damage. Near New Milford large barn burned after being struck by lightning, and 2 horses lost in blaze. At Mansfield power substation struck by lightning, causing lack of power for over 2 hours. Near Dushore, lightning struck and fired home which burned to ground. High winds in Dushore area blew down garage and damaged crops. Tree blown onto roof of home in North Towanda, caused considerable damage.
Madison and Oglethorpe Counties (near Smithonia), Ga.	22	2-2:45 p.m.		$\frac{1}{2}$			38,000		Wind, hail, and electrical	Storm moved southeastward, concentrating damages at 2 spots about 1/4 mile apart. In one spot, high winds destroyed main dwelling of Beaverdam Farm, also a warehouse. At other spot, $\frac{1}{2}$ of brick building wrecked by high winds after lightning had struck and weakened it. Lightning also struck and killed 6 registered cows. Accompanying heavy hail caused little or no damage.
Hoke and Robeson Counties, N.C.	22	5-6 p.m.					1,000	\$100,000	Hail and wind	20 square miles damaged.
Rooks County, Kans.	22	Evening					1,000		Electrical	Home damaged from fire caused by lightning, 7 miles northeast of Stockton.
Mitchell County, Kans.	22	7 p.m.					4,000		do	House on outskirts of Cawker City burned to ground following lightning stroke.
Fort Wayne and vicinity, Ind.	22	7:05 p.m.				Few	5,000		Rain and electrical	Excessive rain, flooded basements and underpasses. Lightning damaged several houses, 2 rather extensively. Telephone lines out for several hours. 80 percent of damage by rain, 20 percent by lightning.
Kalamazoo, Mich.	22-23	Late p.m.—early a.m.					\$50,000		Wind, hail, and electrical	Lightning and resulting fire burned barn valued at \$15,000. Wind blew down trees blocking many roads.
Grand Haven, Mich.	22-23	Night			1		See remarks	See remarks	Wind and hail	Hail and wind reduced quality of wheat and corn crops. Parts of city without electricity for several hours. Many buildings damaged.
Grand Rapids, Mich.	22-23	Night							Wind and electrical	Utilities interrupted by fallen tree limbs.
Milwaukee and adjoining counties, Wis.	23	1 a.m.					\$2,000,000		Wind	South side of City of Milwaukee suffered most damage. An estimated 4,000 telephone outages. About 1,400 homes without electricity for at least 24 hours and some homes for 48 to 72 hours. Considerable spoilage of food in home freezers due to electricity outages. Damage to trees severe. Trees up to 34 inches in diameter uprooted. According to Milwaukee Forestry Department, about 800 trees blown down, another 700 split, and about 5,000 damaged. Value of trees felled and damaged estimated at about \$230,000. Considerable damage to houses, cars, etc. by falling trees and tree limbs.
Chicago, Ill.	23	2 a.m.					25,000		Wind and rain	A severe thunderstorm, accompanied by high winds, caused considerable property damage, particularly through falling trees and basement flooding. Damage largely confined to southeastern portion of city.
Lynchburg and vicinity, Va.	23	Early afternoon					10,000	75,000	Wind, hail, and electrical	Trees uprooted, a few roofs damaged, and telephone and power lines broken in City. Barn blown down about 8 miles west of City. Corn and orchards damaged by hail in Elon area of Amherst County and to a lesser degree in Rustburg and Gladys areas of Campbell County.
Crewe, Va.	23	Afternoon					1,000	4,000	Wind and hail	Store building unroofed. Tobacco damaged by hail. Telephone lines knocked out.
Rumford, Va.	23	Afternoon					2,000	3,000	do	Roofs of house and barn torn off. Another barn moved a distance of 12 feet. A concrete-block chicken house pushed over. Tobacco and orchard crops damaged. State Route 30 blocked with over 20 toppled telephone poles.

See footnotes at end of table.



# SEVERE STORMS

Table 4—Continued

JULY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Pennsylvania, central portion	23	Afternoon			2	Sev- eral	Tens of thous- ands		Electri- cal, tornado, rain, wind, and heat	Near Lancaster man struck and killed by lightning while working in wheat field. In Lebanon intense heat blamed for death of a man. In Lewiston area heavy rains followed passage of "twister" about 1:30 p.m. "Twister" ripped half of roof of Farm Bureau Cooperative Association building, broke heavy brick chimney away from side of building, demolished several silos, and caused other property damage. Heavy rains water-soaked 75 tons of feed before roof could be temporarily taken care of. Ceiling and portion of building dropped down, slightly injuring several Farm Bureau employees. Winds also damaged crops. 2 carriages upset by wind and 1 ripped away from horse that was pulling it, but no injuries reported.
Bertie, Currituck, Edgecomb, Johnston, Franklin, Harnett, Union, Forsyth, and Wilson Counties, N.C.	23	3-6 p.m.					\$2,000	\$365,000	Hail and wind	35 square miles damaged.
Halifax County, N.C.	23				0	0	40,000	20,000	Tornado	New tourist court partially destroyed; crops damaged.
Lead Hill, Ark.	23	4 p.m.	*2	4			\$5,500		Wind and hail	Storm moved northeastward. Principal damage to roofs and store buildings. Damage total includes estimated \$500 to hay in storage.
Globe, Ariz.	23	4:30-5 p.m.	50	50			8,500		Electrical and hail	Storms occurred over wide area from Globe southward. Hailstorm moved from northeast. Hail averaged about 3/8 inch in diameter, with largest 1/2 by 1 inch. Damage mostly to car tops and roofs. Damage by hail, \$8,000; by lightning, \$500.
Wake County, N.C.	23	5:15 p.m.					1,000		Electrical	Killed 2 cows; minor damage to house.
Fulton County (northern portion), N.Y.	23	P.m.							Wind, hail, and electrical	Wind damaged buildings, blew down trees, and interrupted utility services. Lightning burned barn. Hailstones up to 1-1/4 inches in diameter dented autos and damaged paint.
Broome and Tioga Counties, N.Y.	23	P.m.							Wind	Thunderstorm gusts up to 45 m.p.h. uprooted trees, interrupted utility services, and damaged cornfields. Hardest hit were Waverly, Owego, and Lisle.
Constable, N.Y.	23				1				do	Man killed by falling tree.
Hamilton, N.Y.	23				1				Electrical	Woman killed by lightning.
Norwich, N.Y.	23					Few			Wind	High winds caused unestimated property damage and a few personal injuries.
Baltimore, Md.	23	P.m.				2	See remarks		do	2 persons injured slightly as wind blew trees across their path. Trees and wires felled over town. Storage tent blown down, resulting in several hundred dollars damage.
Salome, Ariz.	23	Late p.m.					1,650		Electrical and wind	Wind damage to trees and buildings; tile roof blown off 1 building. Electrical service disrupted by blowing debris. Entire damage by wind.
Lowell, Mich.	23							See remarks	Wind	Wheat and oats damaged.
Phoenix, Ariz.	23				1				Heat	1 death from heat prostration, according to county medical examiner.
Madison (6 miles south of), Fla.	24	3:30-4:30 p.m.			1	2			Electrical	Man killed while chopping base of tree struck by lightning. 2 other men injured by same bolt of lightning while they stood near tree.
Madison, Fla.	24	3:40-4 p.m.					Minor		do	Reported that a bolt of lightning came in window in County Superintendent's Office and touched light above table where 3 persons were sitting then curved around head of 1 person. Minor damage to Court House.
Madison, Fla.	24	3:40-4 p.m.					Minor		Hail	Hailstones about size of small marbles to 3/8 inch in diameter.
Stutsman County, N.Dak.	24	Evening		6	0	0	100,000		Tornado	Tornado struck a 6-mile area north of Jamestown causing damage to at least 10 farms. 1 farm alone estimated \$40,000 to \$50,000 to replace buildings and equipment destroyed.

See footnotes at end of table.



## SEVERE STORMS

Table 4--Continued

JULY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Milton, Fla.	25	1:30-3 p.m.		5				Minor	Hail	Hailstones about $\frac{1}{2}$ inch in diameter. Damage light to cotton.
Fort Mill, S.C.	25	3 p.m.				1	\$500		Electrical	Struck twice in same building.
McColl, S.C.	25	8 p.m.			1				do	Man struck and killed by lightning.
Minnesota, north- central and eastern counties	25				1	2	5,000		do	A road tar tank truck, which was parked underneath tree, exploded when tree struck by lightning; driver injured. Woman killed by lightning and her husband injured.
Phoenix and vicinity, Ariz.	26	2-5 a.m.			2	4	68,000		Electrical, rain, and wind	Severe lightning set numerous small fires in Phoenix. Fireman answered 20 calls in 100 minutes. Man killed by lightning while irrigating near Waddell. Another electrocuted while repairing power lines in downtown Phoenix. Fastest mile of wind at Phoenix Weather Bureau Office 48 m.p.h. from east at 2:11 a.m. Plate-glass windows broken. Falling trees and poles broke power and telephone lines. 3,500 telephones out of service. Rain temporarily flooded streets and entered several stores where plate glass broken. Damage by wind, \$52,000; by rain, \$10,000; by lightning, \$6,000.
Forsyth County, N.C.	26	3 a.m.					1,000		Electrical	Barn burned.
Norwalk area, Huron County, Ohio	26	Afternoon				3	20,000		Electrical, wind, and rain	A severe lightning and windstorm, accompanied by heavy rains destroyed 2 barns, disrupted power services, damaged trees, and flooded streets and basements.
Miami and vicinity, Ariz.	26	4-4:30 p.m.	6-8				55,000	Slight	Electrical, hail, and rain	Hailstones averaged 1 inch in diameter, with largest stones 2 inches in diameter. Damage confined chiefly to roofs of homes and business establishments around Miami. Damage by hail, \$53,000; by rain, \$2,000.
Tucson, Ariz.	26	4:50-5:17 p.m.					5,000		Electrical, wind, rain, and hail	Storm moved from southeast. Hail averaged $\frac{3}{8}$ inch in diameter. Winds felled trees, ripping power lines from poles as they fell. Large metal fence collapsed at drive-in theatre. Roof blown off 1 dwelling and several damaged. Lightning started 2 fires in Santa Catalina Mountains; lightning contributed to power failures, although wind was major cause. Damage by wind, \$4,500; by lightning, \$500.
Stephens, Ark.	26	5:15 p.m.	1,700				See remarks		Wind	Damage to roofs and shade trees. Some windows blown in.
Evergreen, Ala.	26	P.m.			1				Electrical	Lightning struck and killed construction worker atop new municipal water tank.
Salt River Valley, Ariz.	26	6:30-9:30 p.m.				1	50,000		Electrical, rain, and wind	Storm struck Mesa and Gilbert about 1 hour before reaching Phoenix. Warehouse unroofed in Mesa. Tree fell across main power line in Gilbert. Considerable damage to power poles, lines, and transformers. One-third of Phoenix area affected, 2 hospitals without power for about 1 hour. Wind damage to roofs and new construction southeast and east of Phoenix. Weather Bureau Airport Station at Sky Harbor Airport reported gust speeds to 58 m.p.h. from south at 7:50 p.m. Damage by wind, \$40,000; by rain, \$10,000.
White Tank Mountains (north of Buckeye), Ariz.	26	7-8 p.m.		5			See remarks	See remarks	Electrical, and flash flood	Flood waters draining through washes off White Tank Mountains caused damage to crops on pump land near mountain, principally cotton. Waters broke over Roosevelt Irrigation District main canal, damaging canal and crops within irrigation district. Storm moved from south.
Eloy, Ariz.	26	8-10 p.m.					30,000		Electrical, wind, and rain	Television aerials broken or bent and trees uprooted. Power transformers hit by lightning. Cotton delinting plant, and huge warehouse both under construction collapsed from effects of wind. Water from Santa Cruz River, normally dry, overflowed into Eloy for a few hours. Damage by wind, \$25,000; by lightning, \$4,500; by rain, \$500.
Tonopah, Ariz.	26	8:45-9:30 p.m.		1	20		See remarks		Electrical and wind	Heavy winds uprooted a row of 40-foot tamarisk trees. 1 barracks mushroomed and collapsed. 1 roof blown off and 3 others damaged. Windmill tower bent down, steel fence posts broken off. Most of storm over uninhabited desert. Many birds found dead.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

JULY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Essex County, Mass., and shore waters	27	9-9:30 a.m.	10	20	5	11	\$1,000,000		Electrical, rain, wind, and hail	Eastward-moving cold front developed intense pre-frontal squall in area affected, striking inland Essex County communities about 9 a.m. and sweeping out to sea ½ hour later. Lightning, rain, hail, and violent winds reported; estimated 85 m.p.h. gusts at Salem Coast Guard Station. Trees and utility lines downed, highways blocked, and considerable property and some crop damage. Telephone and electric services interrupted. Estimated 200 small craft capsized in Salem Harbor and along shore; 5 persons drowned and many near-drownings. Press reports placed total estimated damage at about \$1,000,000.
Charleston, S.C.	27	11:50 a.m.			0	0	0	\$ 0	Tornado cloud	Tornado-type cloud observed at Charleston, S.C., Airport. CAA control operators in tower noted it first about 11:50 a.m. and advised Weather Bureau Airport Station. Funnel cloud visible for some time, reaching down from cloud base which was about 30 to 35 feet high. Cloud was east-southeast of airport and 8 to 10 miles away, over and beyond Cooper River from North Charleston area. Direction of movement seemed to change. No evidence of damage.
St. Johns-Springerville-Vernon area, Ariz.	27	Afternoon						See remarks	Electrical and hail	2 or more hailstorms moved through area. Average size of stones about 1/8 inch in diameter. Some damage to lettuce in Springerville area. Gardens damaged and fruit bruised at St. Johns. In Vernon district considerable damage to grain and truck crops.
Manchester and vicinity, Minn.	27	6:25 p.m.	133	1½	0	4	300,000		Tornado (possible)	Most of buildings in village either demolished or badly damaged. Many trees uprooted. Poles and wires down. Several automobiles and trucks overturned. Storm was preceded by low rumbling, followed by sudden darkness. Storm moved eastward. Several farm buildings to east of village destroyed. No funnel-shaped clouds observed, but there were reports of straws driven into wood.
Brown, Cottonwood, and Watonwan Counties, Minn.	27	6:30-7:20 p.m.	880	8			See remarks	25,000	Hail	Heavy hail that accompanied a severe thunderstorm caused considerable damage to growing crops and some damage to real property. Hailstones varied in size, some measuring 1½ inches in diameter. Growing crops damaged from 12 to 100 percent. Storm moved from northwest.
Salt River Valley, Ariz.	27-28	9:30 p.m.-12:25 a.m.					13,000		Electrical, wind, and rain	Storm was valley-wide. Wind felled 100 trees between Phoenix and Buckeye. 7 telephone poles downed near Glendale. Downed trees blocked roads west of Phoenix and in Chandler area. Power and telephone lines tangled as result of wind and lightning strikes. Fallen trees and rain damaged some irrigation ditches in Glendale area. Damage by wind, \$1,800; by lightning, \$10,200; by rain, \$1,000.
Johnstown-Latrobe-Pittsburgh area, Pa.	28	Daytime			1	6	100,000		Electrical, winds, rains, and hail	Thunderstorms struck Johnstown area about 3 p.m., 4 p.m. and 11 p.m., resulting in 1 death and 2 injuries. Wind speeds reported as high as 55 m.p.h. Winds blew down brick wall, sheared off much metal roofing, felled trees and utility lines, and damaged crops. Lightning destroyed barn in connection with another thunderstorm about 11 p.m. Lightning also fired fence row near Bedford and threatened nearby fields before being checked by firemen. Latrobe area hard hit by winds which toppled trees, broke limbs, damaged utility lines, and caused other minor property damage. Traffic blocked on many roads by debris. Roads temporarily blocked in Ligonier area. 4 persons injured in Pittsburgh area in storm-induced accidents. Violent winds, hail and heavy rain in Pittsburgh area made this the "worst in the history of Duquesne Light Company". Many utility lines still down a day after end of storm. First storm struck about 3:30 p.m., with lightning striking numerous buildings and setting several fires. The 4 persons injured were caught when winds caused warehouse roof to collapse. First storm recorded gusts up to 62 m.p.h., uprooted trees, disrupted utility and trolley services, and flooded cellars. It was followed about 4 hours later by second storm not quite as severe. Flooded streets common in many sections of city following sudden, heavy showers.
Columbus, Ohio	28	Afternoon				3	250,000		Wind	Most violent storm to hit area in City's history. Strong winds collapsed roofs, unroofed buildings, uprooted trees, demolished cars by fallen trees, disturbed electric power for several hours, damaged 10 light training planes at nearby airport, and toppled walls of buildings.

See footnotes at end of table.



## SEVERE STORMS

JULY 1952

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Shively and southern Louisville, Ky.	28	2-3 p.m.		4			\$21,000		Wind and electrical	Roofs of buildings blown off; numerous trees uprooted, some of them falling across homes and automobiles. A partly completed home caved in by wind. Power lines cut by falling trees and limbs. Lightning set fire to home. \$15,000 of damage caused by winds.
Owen County (northern portion), Ky.	28						°100,000	°	Wind and hail	Losses to crops, barns, and many farm outbuildings. Hail destroyed or badly damaged tobacco and other crops. Power and telephone lines twisted. Hail damage about 60 percent of total.
Mancos, Colo.	28	2:30 p.m.	*2	4			500	\$5,000	Hail, rain, and wind	Fresh to strong winds, accompanied by rain and heavy hail, swept an 8-square mile area adjoining and west of Mancos. Hailstones averaged 1 inch in diameter.
Ridge Springs, Jasper County, S.C.	28	3 p.m.					1,000	7,000	Hail and wind	Mostly peaches and cotton damaged. Warehouse roof damaged. About 1,000 chickens killed.
Denmark, S.C.	28	Afternoon					20,000		Electrical	Old historic home with valuable and antique contents burned by fire caused by lightning.
St. David and vicinity, Ariz.	28	5:15-6 p.m.	1,760	4			9,000	11,000	Electrical, wind, hail, and rain	A heavy fall of rain and hail accompanied by high winds damaged crops, buildings, and livestock. Hail averaged 1 inch in diameter, with largest stones 2 inches. Storm moved from west. Gardens at St. David totally destroyed. Hail reported 3 to 10 inches deep on level. 200 or more chickens and some turkeys killed. Livestock pounded and melted. Roofs cut to shreds. Window glass broken. Rain damaged interiors. Wind ripped large limbs off cottonwood trees. Damage by wind, \$2,000; by hail, \$16,000; by rain, \$2,000.
Glendale- Moundsville area, W.Va.	28	Early evening					See remarks		Electrical, wind, and hail	Widespread damage reported throughout area to trees and power and communication lines. Television antennae blown down in many communities.
Zanesville, Ohio	28	Evening			2				Electrical and wind	Same storm that passed over Columbus in afternoon struck Zanesville that evening. Man killed by lightning. Another man died a week later from injuries received when tree fell on him.
Ellwood City, Pa.	29	Daytime			1	2			Electrical and rain	Woman killed and 2 persons stunned when lightning struck home, as the woman was closing windows against rain.
Wake County, N.C.	29	A.m.					2,000		Wind	3 cars damaged by falling tree.
Bertie, Edgecomb, Lee, Lincoln, Casswell, Vance, Cabarrus, Chatham, Wilkes, Wilson, and Yadkin Counties, N.C.	29	2-7 p.m.					10,000	250,000	Hail and wind	42 square miles damaged.
Butler County, Kans.	29	Afternoon					5,000		Electrical	About 350 barrels of oil burned when oil field battery northwest of El Dorado struck by lightning.
Hopewell, Va.	29	4 and 6:30 p.m.							Thunderstorm	Much minor damage: Trees uprooted; power lines knocked out; signboards and lighter objects thrown about.
Pittsylvania County, Va.	29	5 p.m.					2,000	236,500	Hail	Best crops in history of Ringgold-Sutherland-Kentucky area ripped to shreds, causing total losses to tobacco growers and to lesser extent to other crops. Hailstones size of bird eggs turned countryside white and also damaged a good many roofs.
Norge, Va.	29	Evening					2,500		Electrical	Lightning set fire to dwelling, with much damage by fire and water.
Richmond, Va.	29	6-7 p.m.					15,000		do	Many buildings and dwellings struck; considerable damage to 1 house; many minor fires. Power lines damaged, principally in East End and Southside. 500 telephones out of commission.
Nashville, Tenn.	29	6:49 p.m.							Wind	A few trees uprooted, plate-glass windows broken; and power lines and telephone services knocked out during thunderstorm.

See footnotes at end of table.



# SEVERE STORMS

JULY 1952

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Smithfield, Va.	29	8:30 p.m.					\$25,000		Electrical	Lightning set fire to and destroyed show room of funeral home.
Pasquotank County, N.C.	29	9:30 p.m.					50,000		do	Burned 1 dwelling and 1 business establishment.
Tucson, Ariz.	29	9:30-10 p.m.					4,000		Electrical, wind, and rain	Wind downed trees and damaged some homes. A few roofs blown off. 300 feet of concrete and adobe wall at rodeo grounds blown over. Water in underpasses and dips stalled a few cars. Lawns overrun with water. Damage by wind, \$3,600; by rain, \$400.
Epworth, Iowa	30	2 a.m.	400	9	1		1,000	See remarks	Wind and hail	All crops on strip of land from Epworth to about 3 miles west of Dubuque Airport damaged by severe hail. Wind damaged farm buildings and blew down trees, and power and telephone lines. 14 telephone circuits out in Epworth; similar but smaller damages in Peosta and Bernard.
Fayette County, Ky.	30	9:30-10 a.m.					2,000		Wind, hail, and rain	Numerous tree limbs broken off. Some power lines downed. 2 barns damaged. Some tobacco damaged.
Clark County, Ky.	30	A.m.					1,000	\$10,000	do	Greatest damage caused by wind and hail to corn and tobacco. Barn blown down.
Pike County, Ky.	30	1 p.m.			2	2			Electrical	Fatalities and injuries caused by lightning.
Beaufort, Wilson, Sampson, Cumberland, Caswell, Forsyth, Granville, Rockingham, Davie, Alexander, Allegheny, Ashe, Bun- combe, and Guilford Counties, N.C.	30	1-7 p.m.					12,000	1,720,000	Hail and wind	Heavy thunderstorms scattered throughout State. 150 square miles damaged.
Columbus County, N.C.	30	Afternoon			3	3			Electrical	Struck tobacco barn near Tabor City, killing 3 persons and injuring 3.
Rockingham County, N.C.	30				1				do	Boy reported killed near Reidsville.
Wayne County, N.C.	30	Evening					5,000		do	Caused fire in Goldsboro Post Office.
Columbia and vicinity, S.C.	31	1-2 p.m.				1	20,000		Electrical and hail	2 dwellings burned by fire from lightning. Some light hail, with little resulting damage. 1 serious injury caused by lightning.
Stokes, Vance, Yad- kin, David- son, and Iredell Counties, N.C.	31	3-5 p.m.						30,000	Hail	20 square miles damaged.
McCammon, Idaho	31	Afternoon						5,000	Wind, rain, and hail	Crop damage due to high wind, rain and hail.
McCammon, Idaho	31	Afternoon						4,000	Rain	40-acre hay field inundated by erosion from nearby hills, creating almost total loss.
Harrisburg- Lykens area, Pa.	31	Afternoon					Several thousand		Electrical, rain, winds, and hail	Sudden local intensification of thunderstorm over Harrisburg caused storm sewers to back up and flood cellars; also closed intersections with debris. High winds blew down several big trees, damaging cars parked. Lightning strikes disrupted power service for short periods. In Lykens combination of rain and winds uprooted scores of trees, blocking highways at many points. Porch ripped from house; windows and slate roof of church damaged. Hail attending storm reached depth of more than 1 inch in a few sections, with much still on ground 2 hours after storm.
Houston, Tex.	31	4 p.m.			0	0	0	0	Tornadoes	2 small funnel-shaped clouds observed south-southeast of city. They merged and dissipated without reaching ground.

See footnotes at end of table.



## SEVERE STORMS

Table 4--Continued

JULY 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Whatley, Mass.	31	4-6 p.m.	1,760	1	0	0	\$5,000	\$25,000	Hail and tornadic winds	4 tobacco barns blown down by strong winds; trees and crops, mainly tobacco, flattened and riddled by wind and hail which shared equally estimated damage.
Bourbon and Fayette Counties, Ky.	31	P.m.						29,000	Hail	About 29 acres of tobacco and 12 acres of corn de- stroyed or damaged.
Burlington and Mercer Counties, N.J.	31	P.m.					2,000		Wind, electri- cal, rain, and hail	Light damage to utilities lines and trees by wind. 2 barns demolished by lightning; horse killed in 1 barn. 2 culverts washed out by heavy rain. Top of Weather Bureau T.B. Rain Gage flattened when blown from roof of Post Office to ground.
Big Stone and Swift Counties, Minn.	31	6 p.m.	*3	10			5,000	50,000	Hail, wind, and rain	Heavy hail that accompanied severe thunderstorms caused much damage to growing crops and consider- able damage to real property. Hailstones numerous and varied in size, some measuring 1 inch in diame- ter. Some fields of small grains reported to be total loss. Storm moved from northwest. High winds and heavy rains accompanied storm and caused some additional damage.
Mullins, S.C.	31	7:30 p.m.			1				Electri- cal	Man struck and killed by lightning.
Cumberland County, N.C.	31	7:30 p.m.					40,000		do	Fire damage to military installations at Fort Bragg
Mt. Vernon Community, Ala.	31					2			do	2 persons injured by lightning.

\* Miles instead of yards.

° Crop damage included with other property damage.



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

JULY 1952

Several flash floods were reported throughout the country during July. There was no major flooding. The flooding along the Floyd River in Iowa was one of the higher summertime rises. Record low stages occurred along several streams in the East Gulf of Mexico Drainage.

**HUDSON BAY DRAINAGE.**—Minor flooding occurred on the Red River of the North at Moorhead, Minn., between the 2d and 4th due to heavy local rains on the nights of the 1st and 2d. Rainfall in the Fargo-Moorhead area totaled 3.93 inches on the 1st and 2.32 inches on the 2d. Unofficial amounts of up to 7 inches were reported on the night of the 1st. No damages resulted from the flooding.

**ATLANTIC SLOPE.**—Severe drought conditions prevailed in Maine during the month. Many private wells were running dry. River levels were well below normal.

Excessive rains over the Delaware River basin on the 9th and 10th caused sharp rises in the Schuylkill, Delaware, Lehigh, and Lackawaxen Rivers. Light flooding occurred on the Lehigh River at Lehigh, Pa., and on the Lackawaxen River at Hawley, Pa. Both rivers were at low stages prior to the storm as the preceding period had been quite dry. Some local flooding occurred on Perkiomen Creek in the vicinity of Graterford, Pa. The precipitation during the storm averaged around 7 inches. Only minor damages occurred along the main streams but considerable damage resulted in the Honesdale, Pa. area from small creeks that overflowed.

A flash flood on the 22d on an unnamed stream, tributary to Toby Creek at Trucksville, Pa., caused the death of a young mother and two children.

**EAST GULF OF MEXICO DRAINAGE.**—Record low stages occurred on several streams during the month. The Coosa River reached a new record low stage of 1.7 feet on the 24th, 25th and 31st at Childersburg, Ala. The previous record July low at this point was 1.8 feet in 1944. The Cahaba River reached a new record low of 1.5 feet from the 25th through the 31st at Marion Junction, Ala. The previous July low was 1.8 feet in 1941. The Alabama River reached a new record low of 4.3 feet on the 30th.

**Upper Mississippi Basin.**—Phenomenally heavy rainfall in and about the City of Rockford, Ill., from late evening of the 17th to near mid-day on the 19th caused sudden overflows in Kent, Keith, Pelley Road, and Willow Creeks, tributaries to the Rock River, at or in the vicinity of the city. The Rock River did not overflow. Keith Creek filled a flood detention reservoir for the first time since completion more than ten years ago. Some damage also occurred due to overflow of Willow Creek near Loves Park, and flooding of Pelley Road Creek resulted in the loss of at least two lives. The principal property damage was caused by the overflow of Kent Creek. It flooded a 50-block area of homes, filling or caving in basements, damaged industrial plants and washed out tracks of the Illinois Central Railroad.

Very heavy rains above St. Paul, Minn., from the 13th to 20th caused an unusually pronounced rise in the Mississippi River. Heavy focal point of rains in the Aitken, Minn. area exceeded 7 inches in a 48-hour period. The definite rise began at Hastings, Minn. on the 20th and reached La Crosse, Wisc., on the 30th with a peak stage of 10.8 feet, 1.2 feet below flood stage. No flooding resulted in the Mississippi. Minor flooding occurred in

the La Crosse River. This is likely the first time in the period of record that a rise of this nature occurred during the month of July.

**Missouri Basin.**—Heavy thundershowers in extreme southeastern South Dakota and in northwestern Iowa during the 6th and 7th caused minor flooding along the Big Sioux River at Akron, Iowa, and moderate flooding along the Floyd River at Merrill and James, Iowa. The flood along the Floyd River was one of the higher summertime rises, but it was still about 1 foot lower than the previous high floods of 1951, and of March of this year. The rainfall from Hawarden and Le Mars, Iowa to Sioux City averaged about 4.5 inches during a 12-hour period on the 6th and 7th. Since the heavier rains were over the lower portions of the Floyd and Big Sioux River Valleys, flooding was somewhat less than it might have been. Rains were much lighter and run-off was rather limited north of Hawarden and Le Mars, Iowa. Flood damage along the Floyd was relatively light. No damage was reported along the Big Sioux River.

Heavy scattered showers on the 14th caused light to moderate flooding on the Little Blue River near the Kansas-Nebraska line and light local flooding in the upper Big Blue River and minor flooding on the lower portion of Sappa Creek. The rainfall averaged 3.2 inches over the Nebraska portion of the Big Blue Basin and a little over an inch in northern Kansas. In the Little Blue Basin the rainfall ranged from near an inch in Nebraska to 1.5 inch in Kansas. Little, if any, damage resulted from the minor overflows.

**Ohio Basin.**—Flash floods were reported in the extreme upper portion of the Ohio Basin in the Oil City and Pittsburgh, Pa. areas due to severe heavy thundershowers on the 18th. The rainfall averaged over 2 inches over the lower Allegheny River and over 4 inches in the Vandergrift, Pa. area in a 12-hour period. Damage from the flooding amounted to several thousands of dollars.

**Atchafalaya Basin.**—Minor flooding occurred on the Atchafalaya River at Morgan City, La., for a few hours on the 16th due to wind and tide effects.

**WEST GULF OF MEXICO DRAINAGE.**—Heavy rains during the period from the 15th to the 19th caused bankfull stages on the Calcasieu River at Kinder and Lake Charles, La. About 150 families were evacuated from low areas in Lake Charles flooded by surface water that overtaxed the city's drainage system. The Lower Sabine, Nezpique and Mementau Rivers reached three-fourths bankfull stage. The highest amount of rainfall reported during this period was 16.56 inches in the City of Lake Charles.

A flash flood occurred in portions of Albuquerque, N. Mex., on the evening of the 14th from locally heavy rains. The heavy rains were confined to smaller areas in the eastern foothills and on the west side of the river. A total of only 0.44 inch was recorded at the Airport and 0.26 inch at the climatological substation. Damage was estimated at \$58,000 mostly to dwellings and streets and roads.

**Great Salt Lake Basin.**—A flash flood occurred in the Truckee Canyon in Nevada in the Farad, Nevada area southwest of Reno on the afternoon of the 12th. The rain lasted for about 2-1/2 hours and was mixed with hail for about one-third of the time. The southern limit of the storm was 0.2 mile north of Floriston, Calif., and extended for a distance of 4 miles north along the Truckee



## GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS--Continued

JULY 1952

River Canyon. Five major slides occurred on U. S. highway No. 40, and three slides on the Southern Pacific right-of-way, which is across the river from the highway.

Another flash flood occurred a few miles south of Reno on the afternoon of the 29th. The actual rainfall occurred some distance above the Galena Creek Camp ground in the vicinity of the Mt. Rose Ski Bowl and thence northward on Mt. Rose. Galena Creek rises in a series of canyons on the east side of Mt. Rose, and the flood waters of these

canyons converged and came down the main channel of Galena Creek all at one time. The cascading waters hit the Galena Creek area in a wall of water 5 to 7 feet high just before 4 o'clock in the afternoon of the 29th. The water hit with enough force to demolish one house and carry at least one car down the canyon. Between 16 and 18 people narrowly escaped death.

Heavy rain over Parley's Canyon on the 30th caused a flash flood in the southeast section of Salt Lake City, Utah. The damages were not severe.



# FLOOD STAGE DATA

(All dates in July unless otherwise specified)

JULY 1952

Table 5

River and station	Flood stage	Above flood stages -dates		Crest +	
		From—	To—	Stage	Date
<b>HUDSON BAY DRAINAGE</b>	<i>Fl</i>			<i>Fl</i>	
Red: Moorhead, Minn.	17	2	3	18.4	3
<b>ATLANTIC SLOPE DRAINAGE</b>					
Lackawaxen: Hawley, Pa.	9	9	10	11.8	10
Lehigh: Lehigh, Pa.	9	9	10	10.0	10
<b>MISSISSIPPI SYSTEM</b>					
<u>Upper Mississippi Basin</u>					
Illinois: Havana, Ill.	14	June 21	3	15.8	June 24
Beardstown, Ill.	14	June 23	5	16.0	June 27-28
Mississippi: Aitken, Minn.	12	19	**	14.4	28
Fort Ripley, Minn.	10	21	28	10.9	23
<u>Missouri Basin</u>					
Big Sioux: Akron, Iowa	12	6	8	15.4	7
Floyd River: Merrill, Iowa	12	6	7	13.2	7
James, Iowa	16	6	9	19.1	7
Republican: Stamford, Nebr.	14	14	15	15.2	15
Little Blue: Endicott, Nebr.	9	15	16	12.4	15
		17	17	9.6	17
Big Blue: Crete, Nebr.	16	June 26	1	24.0	June 27
				23.0	June 29
		16	19	20.9	17
Beatrice, Nebr.	16	June 28	1	23.1	June 29
		15	15	17.1	15
Barnston, Nebr.	18	June 29	1	23.6	June 30
		14	15	18.5	15
Blue Rapids, Kans.	20	June 28	1	24.5	June 29
		16	16	21.2	16
<u>Ohio Basin</u>					
West Fork: Edwardsport, Ind.	12	June 23	1	17.9	June 27
<u>Atchafalaya Basin</u>					
Atchafalaya: Morgan City, La.	6	16	16	6.2	16
<b>WEST GULF OF MEXICO DRAINAGE</b>					
Rio Grande: Presidio, Tex.	10	Unknown		15.6	13

\* Provisional.

\*\* Continued at end of month.



# RADIOSONDE DATA

Average monthly values

JULY 1952

Table 20

ALBUQUERQUE, N. MEX. ( 840 MB.)				ATLANTA, GA. ( 985 MB.)				BIG SPRING, TEX. ( 927 MB.)				BISMARCK, N. DAK. ( 954 MB.)				BOISE, IDAHO ( 915 MB.)				BROWNSVILLE, TEX. (1015 MB.)				BUFFALO, N. Y. ( 992 MB.)							
Standard pressure surface (mb)																															
Number of observations				Dynamic height				Temperature				Relative humidity				Number of observations				Dynamic height				Temperature				Relative humidity			
SURFACE	31	1,620	25.9	39	29	309	26.7	60	31	784	27.7	48	31	505	21.6	64	31	868	26.6	34	31	6	27.0	80	31	221	21.9	75			
1,000--	31	46				171				100			31	93			31	73			31	139	26.2	79	31	152					
950--	31	517				627	26.4	53	31	563			31	547	21.7	52	31	538			31	596	23.5	76	31	604	21.6	63			
900--	31	1,008				1,102	20.0	56	31	1,043	27.0	44	31	1,013	20.5	48	31	1,011	27.2	23	31	1,062	21.6	65	31	1,067	18.7	64			
850--	31	1,513				1,597	19.0	62	31	1,546	23.3	48	31	1,504	16.9	50	31	1,513	23.6	22	31	1,556	19.1	58	31	1,555	15.3	67			
800--	31	2,048	23.8	33	29	2,115	15.3	63	31	2,072	19.1	54	31	2,017	13.3	51	31	2,038	19.1	26	31	2,075	16.3	52	31	2,067	12.7	54			
750--	31	2,614	19.3	36	29	2,663	11.5	64	31	2,623	14.6	62	31	2,564	9.8	47	31	2,593	14.4	31	31	2,626	13.2	48	31	2,613	10.1	48			
700--	31	3,196	14.4	41	29	3,233	8.0	56	31	3,203	10.2	64	31	3,127	5.9	47	31	3,164	9.6	36	31	3,198	9.9	45	31	3,178	7.2	42			
650--	31	3,819	9.0	50	29	3,847	4.3	54	31	3,821	6.0	64	31	3,734	1.9	45	31	3,781	5.1	37	31	3,816	6.1	45	31	3,787	3.5	46			
600--	31	4,473	3.2	60	28	4,487	3.3	46	31	4,468	2.1	57	31	4,372	-2.3	40	31	4,423	2.6	36	31	4,461	2.1	47	31	4,429	-1.1	41			
550--	31	5,174	-2.4	66	28	5,180	-3.4	39	31	5,171	-1.9	55	31	5,060	-6.6	34	31	5,120	-3.9	35	31	5,166	-1.8	43	31	5,121	-4.0	37			
500--	31	5,923	-7.7	65	27	5,930	-7.6	36	31	5,919	-6.1	49	31	5,796	-11.5		31	5,860	-8.9	36	31	5,912	-6.2	36	31	5,869	-8.6				
450--	31	6,742	-12.9	58	27	6,748	-12.4	35	31	6,744	-10.9	42	31	6,605	-17.1		31	6,674	-14.3	28	31	6,742	-11.4	31	31	6,687	-13.9				
400--	31	7,624	-18.6	45	27	7,633	-18.6	35	31	7,632	-17.1	34	31	7,470	-23.2	33	31	7,550	-20.8	28	31	7,622	-17.4	29	31	7,563	-20.1				
350--	30	8,605	-25.5	41	27	8,614	-25.7	30	31	8,614	-25.7	30	31	8,433	-30.4		31	8,522	-28.6	28	31	8,506	-24.8		31	8,538	-27.4				
300--	30	9,704	-33.7	38	27	9,713	-34.1	30	31	9,726	-32.7		31	9,510	-38.5		31	9,608	-37.1	25	31	9,704	-33.5		31	9,630	-35.6				
250--	29	10,957	-42.9	25	25	10,964	-43.9	30	31	10,983	-42.7		31	10,739	-47.5		31	10,847	-46.6	19	31	10,958	-43.3		31	10,875	-44.7				
200--	29	12,127	-53.9	24	24	12,125	-55.8	30	31	12,452	-54.3		31	12,189	-54.1		31	12,296	-55.8	18	31	12,420	-54.7		31	12,336	-54.6				
175--	29	13,273	-59.7	23	23	13,270	-61.4	29	31	13,294	-60.4		31	13,042	-55.5		31	13,139	-58.6	18	31	13,262	-60.5		31	13,184	-58.6				
150--	29	14,223	-65.2	23	23	14,214	-66.6	28	31	14,239	-66.2		31	14,020	-57.0		31	14,103	-59.9	18	31	14,208	-65.8		31	14,145	-61.8				
125--	27	15,321	-69.3	22	22	15,305	-69.5	27	31	15,328	-70.4		31	15,171	-58.3		31	15,237	-61.3	17	31	15,303	-69.2		31	15,265	-63.6				
100--	25	16,653	-75.5	20	20	16,639	-78.4	23	31	16,654	-69.2		31	16,576	-57.7		31	16,622	-60.6	16	31	16,629	-69.5		31	16,639	-69.6				
80--	22	18,010	-83.1	17	17	17,992	-83.8	17	31	17,999	-64.3		31	17,985	-55.5		31	18,016	-58.1	15	31	17,965	-66.5		31	18,035	-58.3				
60--	22	19,799	-58.3	17	17	19,777	-58.9	18	31	19,779	-59.5		31	19,826	-53.3		31	19,843	-54.6	12	31	19,730	-60.3		31	19,864	-54.8				
40--	19	20,952	-55.7	13	13	20,923	-56.9	17	31	20,928	-57.3		31	21,002	-51.4		31	21,014	-52.8	12	31	20,876	-56.5		31	21,029	-53.1				
30--	17	22,382	-52.9	11	11	22,336	-54.5	14	31	22,342	-54.2		31	22,453	-49.5		31	22,460	-50.7	12	31	22,297	-54.6		31	22,476	-50.7				
20--	10	24,249	-49.8	9	9	24,189	-51.3	10	31	24,199	-51.2		31	24,341	-46.9		31	24,346	-47.7	10	31	24,147	-50.5		31	24,335	-48.2				
15--													31	27,022	-45.0		31	27,040	-44.7	14	31	27,041	-42.9								
BURRWOOD, LA. (1018 MB.)				CARIBOU, MAINE ( 993 MB.)				CHARLESTON, S. C. (1019 MB.)				COLUMBIA, MO. ( 989 MB.)				DODGE CITY, KANS. ( 926 MB.)				EL PASO, TEX. ( 882 MB.)				ELY, NEV. ( 812 MB.)							
SURFACE	31	3	27.6	82	31	191	18.5	76	31	13	25.0	87	31	238	24.9	67	31	792	26.4	46	31	1,195	27.6	43	31	1,908	21.9	37			
1,000--	31	159	27.1	79	31	128			31	177	26.3	79	31	103			31	100			31	137	26.2		31	46					
950--	31	611	24.2	75	31	572	20.1	61	31	634	24.5	72	31	602	25.6	57	31	565			31	531			31	518					
900--	31	1,085	21.7	67	31	1,036	17.6	59	31	1,103	21.5	69	31	1,072	22.7	57	31	1,040	26.8	40	31	1,017			31	1,000					
850--	31	1,580	19.1	58	31	1,522	14.0	61	31	1,597	18.4	63	31	1,567	19.4	57	31	1,542	23.3	43	31	1,520	26.3	40	31	1,501					
800--	31	2,099	16.1	54	31	2,030	10.4	62	31	2,115	15.4	59	31	2,086	15.9	56	31	2,068	19.6	47	31	2,051	22.2	44	31	2,032	23.2	31			
750--	31	2,654	12.7	49	31	2,575	7.1	61	31	2,665	11.9	58	31	2,639	12.7	54	31	2,623	15.8	48	31	2,614	17.7	49	31	2,596	19.2	32			
700--	30	3,220	8.9	50	31	3,130	4.0	52	31	3,234	8.2	57	31	3,209	9.1	54	31	3,201	11.6	49	31	3,193	12.8	55	31	3,178	14.1	36			
650--	30	3,835	5.1	46	31	3,735	-8.9	45	31	3,850	4.6	50	31	3,827	5.4	50	31	3,819	7.2	47	31	3,816	8.1	51	31	3,800	8.6	42			
600--	30	4,478	1.3	42	30	4,368	-2.3	39	31	4,492	-7.4	44	31	4,469	-1.3	49	31	4,470	2.6	44	31	4,467	3.2	61	31	4,453	2.9	50			
550--	30	5,180	-2.7	41	30	5,059	-6.3	37	31	5,190	-3.2	38	31	5,170	-3.0	44	31	5,167	-2.3	41	31	5,171	-2.0	64	31	5,149	-2.9	55			
500--	30	5,923	-7.4	41	30	5,793	-10.8	36	31	5,934	-7.5	38	31	5,914	-7.4	40	31	5,918	-7.1	36	31	5,920	-7.1	56	31	5,898	-8.7	56			
450--	29	6,743	-12.2	39	30	6,602	-16.0	33	31	6,755	-12.6	36	31	6,741	-12.4	37	31	6,736	-12.4	35	31	6,744	-11.8	47	31	6,713	-14.4	48			
400--	29	7,628	-18.1	33	30	7,474	-22.1	35	31	7,638	-18.6	38	31	7,616	-18.4	37	31	7,622	-18.5	37	31	7,629	-17.4	39	31	7,590	-20.4	40			
350--	27	8,613	-25.4	30	30	8,442	-29.0	30	31	8,619	-25.7	28	31	8,598	-25.5		31	8,603	-25.5	26	31	8,614	-24.2		31	8,564	-27.4				
300--	26	9,712	-33.8	30	30	9,526	-37.1	30	31	9,716	-34.1	30	31	9,697	-33.9		31	9,704	-33.7	26	31	9,719	-32.6		31	9,654	-35.7				



Average monthly values

JULY 1952

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.



# RADIOSONDE DATA

Average monthly values

JULY 1951

Table 20-Continued

SAN ANTONIO, TEX. ( 988 MB.)					SAN JUAN, P. R. (1016 MB.)					SANTA MARIA, CALIF. (1007 MB.)					S. STE. MARIE, MICH. ( 990 MB.)					SPOKANE, WASH. ( 932 MB.)					SWAN ISLAND, W. I. (1014 MB.)					TACUBAYA, MEXICO ( 775 MB.)				
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity						
SURFACE	31	243	28.3	58	31	19	25.9	86	31	71	14.9	83	31	221	16.8	83	31	722	25.8	26	22	10	27.1	84	28	2,306	5.4	70						
1,000---	31	135			31	157	25.7	82	31	127	14.3	82	31	130			31	95		26	22	129	26.6	83	28	81								
950---	31	592	26.6	63	31	505	23.0	82	31	576	19.2	63	31	575	18.5	69	31	557		22	22	585	23.8	82	28	541								
900---	31	1,068	23.2	68	31	1,080	20.1	82	31	1,032	23.5	27	31	1,034	16.4	67	31	1,027	23.0	27	32	1,054	21.0	78	28	1,019								
850---	31	1,565	19.7	71	31	1,572	17.0	80	31	1,529	22.0	27	31	1,519	13.6	67	31	1,520	18.3	31	32	1,548	18.1	75	28	1,512								
800---	31	2,085	16.3	71	31	2,088	14.7	71	31	2,052	18.7	31	31	2,028	10.5	66	31	2,034	13.5	37	32	2,065	15.1	70	28	2,039								
750---	31	2,638	13.3	60	31	2,638	12.3	60	31	2,605	14.8	33	31	2,570	7.8	57	31	2,576	8.8	43	32	2,612	12.2	65	28	2,593	14.0	71						
700---	31	3,210	10.1	55	31	3,209	8.7	52	31	3,181	10.6	35	31	3,130	5.0	52	31	3,139	4.5	45	32	3,185	8.8	60	28	3,167	10.0	71						
650---	31	3,830	6.6	51	31	3,825	5.1	53	31	3,798	6.6	34	31	3,737	1.8	45	31	3,743	.8	37	32	3,797	5.3	53	28	3,787	5.8	81						
600---	31	4,476	2.7	48	31	4,469	1.3	51	31	4,446	2.2	30	31	4,373	- 2.0	37	31	4,377	- 3.2	32	32	4,445	1.9	52	28	4,431	1.6	81						
550---	31	5,180	- 1.0	38	31	5,175	- 2.3	46	31	5,147	- 2.4	29	31	5,061	- 6.2	34	31	5,062	- 7.7		22	5,140	- 2.6	52	27	5,134	- 2.3	81						
500---	31	5,930	- 5.6	37	31	5,916	- 6.8	39	31	5,892	- 7.6	29	31	5,798	-10.9		31	5,793	-12.6		22	5,891	- 7.2	52	26	5,882	- 6.3	71						
450---	30	6,760	-10.7	36	31	6,744	-11.8	36	31	6,713	-13.2	29	31	6,603	-16.2		30	6,595	-17.6		22	6,710	-12.2	48	26	6,710	- 1.9	61						
400---	30	7,647	-16.8	34	31	7,623	-17.9	39	31	7,590	-20.1	29	31	7,478	-22.2		30	7,462	-24.0		22	7,597	-17.7	49	25	7,598	-16.6	61						
350---	30	8,634	-24.0		31	8,606	-25.6	40	31	8,565	-27.5	29	31	8,445	-29.4		29	8,416	-31.6		21	8,582	-24.3		25	8,587	-23.6	52						
300---	30	9,740	-32.6		31	9,704	-34.4	40	31	9,655	-35.9	29	31	9,526	-37.7		29	9,487	-40.0		21	9,686	-32.7		22	9,698	-31.8							
250---	30	10,997	-42.8		31	10,953	-44.8		31	10,898	-44.8	29	31	10,759	-46.5		29	10,708	-48.1		21	10,942	-42.7		20	10,962	- 2.6							
200---	30	12,465	-54.4		30	12,404	-57.0		31	12,361	-53.5	28	31	12,213	-53.9		29	12,151	-55.4		19	12,407	-54.7		18	12,433	-54.4							
175---	30	13,307	-60.6		30	13,237	-63.0		31	13,212	-57.2	28	31	13,067	-56.2		29	13,000	-56.4		16	13,250	-61.2		15	13,276	-61.0							
150---	30	14,252	-66.5		28	14,184	-67.6		31	14,176	-61.9	27	31	14,039	-58.0		29	13,976	-56.7		13	14,185	-67.3		11	14,219	-67.1							
125---	30	15,343	-70.4		28	15,276	-65.6		31	15,292	-65.6	29	31	15,183	-58.8		29	15,128	-57.7		11	15,269	-71.9		7	15,301	- 5.3							
100---	29	16,663	-70.7		24	16,601	-72.2		30	16,645	-65.5	26	31	16,584	-57.9		26	16,536	-57.2		6	16,577	-70.6		8	16,577	-70.6							
80---	28	18,000	-86.0		21	17,916	-69.5		30	18,010	-62.2	25	31	17,997	-56.0		26	17,950	-55.9		6	17,906	-68.8											
60---	28	19,764	-81.0		20	19,658	-62.0		28	19,808	-57.4	23	31	19,834	-53.8		25	19,787	-53.9															
50---	26	20,905	-57.6		18	20,796	-59.0		26	20,965	-55.3	22	31	21,007	-52.4		23	20,961	-52.7															
40---	23	22,320	-55.3		12	22,199	-56.4		26	22,395	-52.8	21	31	22,457	-50.3		19	22,404	-51.2															
30---	21	24,171	-51.7		8	24,037	-53.1		22	24,266	-49.4	16	31	24,342	-47.9		15	24,277	-49.2															
20---	12	26,838	-47.5									5	31	27,015	-46.0		5	26,958	-46.8															

TAMPA, FLA. (1019 MB.)				TATOOSH ISLAND, WASH. (1016 MB.)				WASHINGTON, D. C. (1009 MB.)				
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	
SURFACE	31	9	25.6	83	31	31	12.7	89	31	88	23.7	78
1,000---	31	172	25.7	79	31	163	12.4	85	31	170	25.1	71
950---	31	625	23.5	75	31	602	13.7	71	31	626	23.9	62
900---	31	1,095	20.8	70	31	1,051	14.1	55	31	1,092	20.7	64
850---	31	1,588	17.8	67	31	1,531	11.9	49	31	1,584	17.3	63
800---	31	2,105	14.9	67	31	2,037	9.6	42	31	2,100	14.2	59
750---	31	2,659	11.8	64	31	2,572	6.9	38	31	2,650	11.3	54
700---	31	3,224	8.5	56	31	3,134	4.0	35	31	3,216	8.2	44
650---	31	3,840	4.8	55	31	3,735	.8	30	31	3,832	4.9	41
600---	31	4,482	.9	54	31	4,371	- 2.9	30	31	4,473	1.4	43
550---	31	5,185	- 3.1	54	31	5,056	- 7.0	31	31	5,173	- 2.6	37
500---	31	5,925	- 7.4	48	31	5,792	-10.7	31	31	5,918	- 7.2	38
450---	31	6,759	-12.5	45	31	6,592	-16.8	32	31	6,740	-12.7	37
400---	31	7,628	-18.3	44	31	7,466	-23.1	32	31	7,620	-18.7	36
350---	31	8,609	-25.6	44	31	8,428	-30.6	31	31	8,600	-25.8	36
300---	31	9,706	-34.1	43	31	9,504	-38.6	31	31	9,697	-34.2	39
250---	31	10,954	-44.2		30	10,729	-47.5	31	31	10,945	-44.3	
200---	31	12,409	-56.2		30	12,176	-55.1	31	31	12,400	-55.8	
175---	31	13,244	-62.2		27	13,030	-56.0	31	31	13,239	-60.8	
150---	31	14,183	-67.4		27	14,008	-56.0	30	31	14,187	-64.9	
125---	31	15,271	-70.1		26	15,168	-56.7	27	31	15,296	-66.7	
100---	29	16,607	-68.4		25	16,586	-57.0	26	31	16,650	-64.2	
80---	28	17,954	-65.2		23	17,999	-55.5	25	31	18,024	-60.5	
60---	24	19,725	-60.4		23	19,838	-53.9	22	31	19,831	-56.8	
50---	23	20,867	-57.8		22	21,009	-52.5	20	31	20,991	-54.3	
40---	20	22,283	-54.8		16	22,453	-51.7	18	31	22,429	-52.0	
30---	10	24,120	-51.5		13	24,327	-48.9	15	31	24,303	-48.6	

Note: All observations scheduled at 0300, G.C.T. except at Mazatlan, Merida and Veracruz, where they are taken near 0200, G.C.T.. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and

expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radio-sondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.



## Average monthly resultant winds

Table 21

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°; W = 270°); speeds in meters per second.



# RAWIN DATA

Average monthly resultant winds

Table 22

JULY 1955

Altitude (meters)  m.a.l.	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Burrwood, La. (3 m.)			Caribou, Me. (191 m.)			Charleston, S. C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N. C. (275 m.)			Hatteras, N. C. (3 m.)			Int. Falls Minn. (358 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed			
Surface-----	31	83	1.2	31	142	3.2	31	6	1.7	31	121	3.8	31	138	2.0	31	238	2.7	31	207	1.2	31	115	1.8	31	128	0.2	31	190	0.5	31	179	2.1	31	227	1.1
500-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,000-----	---	---	---	31	144	5.6	30	313	2.2	31	130	7.1	30	103	4.5	31	270	6.1	31	195	2.7	31	199	4.2	---	---	---	---	---	---	---	---	---	---	---	
1,500-----	---	---	---	31	155	7.0	30	289	4.4	31	133	5.5	29	93	4.6	30	276	6.0	31	200	1.4	31	219	5.5	31	159	2	31	256	2.2	31	274	3.0	30	260	6.8
2,000-----	---	---	---	31	159	7.0	31	282	6.6	31	127	4.6	29	92	5.3	30	282	6.5	31	216	4	31	231	5.6	31	251	1.7	31	278	2.5	31	276	2.3	30	269	8.4
2,500-----	31	186	1.1	31	158	5.8	31	285	9.2	31	116	3.9	29	95	5.2	30	280	6.5	31	216	4	31	240	5.8	30	244	2.2	31	302	2.9	31	269	2.6	30	269	8.7
3,000-----	31	209	8	31	156	4.4	31	284	10.0	31	110	3.4	29	86	5.1	30	271	7.8	31	25	7	30	246	5.5	30	262	2.0	31	308	3.4	31	267	2.7	29	266	10.0
4,000-----	31	252	1.8	31	98	1.1	30	278	13.7	30	101	3.8	29	84	3.7	30	344	10.0	30	344	7	30	258	4.1	30	271	2.3	31	297	2.8	30	245	2.1	27	272	12.7
5,000-----	31	298	1.5	30	42	2.0	30	276	16.3	29	91	4.4	30	86	2.8	28	272	8.7	29	3	4	29	277	4.1	30	260	3.4	31	275	2.2	29	248	1.9	28	274	15.7
6,000-----	31	301	1.6	30	59	2.3	28	276	17.7	26	87	4.0	29	85	3.1	28	276	9.9	29	1	1	29	279	5.4	29	258	4.8	31	314	3.6	29	247	1.6	24	273	17.4
8,000-----	29	251	3.0	29	70	1.0	24	271	22.1	25	79	4.8	28	85	2.4	27	280	10.1	29	10	5	27	270	9.5	29	249	7.2	31	318	4.0	26	279	2.6	20	276	20.6
10,000-----	29	247	8.1	29	321	18	268	24.0	20	62	4.5	25	88	5.0	23	292	12.3	27	282	1.0	23	272	12.6	28	245	10.1	30	315	6.0	25	282	4.6	12	260	27.0	
12,000-----	29	259	10.0	28	290	6	12	275	21.5	19	58	2.8	24	86	7.5	19	300	13.5	26	197	1.2	18	275	14.0	27	249	14.7	28	298	5.7	24	302	5.6			
14,000-----	27	235	6.9	28	41	5	10	275	14.7	16	55	6.2	18	82	6.6	13	279	7.6	26	42	3.2	11	305	13.0	26	255	15.7	28	308	5.7	23	330	5.0			
16,000-----	17	295	2.2	24	56	4.2	10	272	9.9	14	65	6.3	17	102	6.7	13	256	5.1	22	69	6.5															
18,000-----	13	99	6.2	18	92	7.5				12	82	13.2	15	83	7.6				21	87	7.9															
20,000-----	12	80	10.0	16	82	11.0				10	94	18.4	13	84	13.3				19	82	11.7															
22,000-----	11	85	13.8	14	88	15.5													18	81	16.4															
24,000-----																			13	90	19.5															

	Little Rock, Ark. (80 m.)			Medford, Ore. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P.R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)			
Surface-----	31	146	1.6	31	334	3.9	31	109	2.8	31	214	2.8	31	215	0.2	31	288	4.5	31	132	4.4	31	21	1.7	31	127	4.7	31	111	4.1	31	153	1.1	31	273	3.3	
500-----	31	176	4.4	31	333	4.4	31	116	6.6	29	263	6.0	31	154	1.0	29	274	4.3	25	134	5.1	---	---	---	---	31	142	7.9	31	89	8.9	30	195	2.7	31	327	2.4
1,000-----	31	178	4.3	31	329	5.4	31	118	6.7	29	281	6.8	31	210	1.1	29	268	3.2	25	160	7.2	31	20	1.6	31	145	8.0	31	93	9.5	29	236	5.3	31	293	2.1	
1,500-----	31	179	3.7	31	313	3.4	31	113	6.2	29	291	3.8	31	256	1.6	30	239	1.1	27	177	7.0	31	90	7	31	151	5.2	31	92	8.8	29	257	7.2	31	87	2.2	
2,000-----	31	190	3.2	31	282	2.3	31	110	6.2	29	289	3.7	31	267	1.8	31	164	1.7	26	195	6.0	31	239	1.9	31	153	2.5	31	92	8.9	28	270	8.1	31	97	1.9	
2,500-----	31	191	3.4	31	255	2.6	31	107	5.9	29	292	4.7	31	254	1.6	31	159	2.0	28	209	4.9	31	245	4.5	31	134	1.3	31	92	8.8	28	278	9.9	31	114	2.5	
3,000-----	31	182	2.8	31	256	3.6	31	111	5.0	29	293	6.0	31	254	1.9	31	145	2.4	29	215	2.8	31	258	7.7	31	98	2.0	31	93	9.6	28	280	11.5	31	146	2.9	
4,000-----	30	179	2.6	31	263	5.0	31	100	5.5	29	293	6.5	31	288	1.1	31	146	2.5	29	193	5	31	267	12.3	31	109	2.5	31	90	8.9	29	279	14.0	31	177	2.2	
5,000-----	27	218	5	31	265	5.1	30	104	5.2	29	290	8.1	30	316	1.5	31	168	2.4	30	27	6	31	275	14.1	31	105	2.4	31	93	7.0	26	281	17.3	30	192	2.7	
6,000-----	27	334	1.2	31	276	5.6	30	87	4.8	29	297	8.5	30	323	2.0	31	189	1.8	30	336	1.7	31	275	16.4	31	93	2.2	31	90	5.3	25	278	18.5	29	210	4.3	
8,000-----	24	318	2.1	30	259	7.5	27	94	3.7	21	297	9.6	30	300	3.8	31	200	2.5	30	276	4.1	31	272	19.3	30	62	3.6	31	122	3.4	22	272	21.5	29	223	6.3	
10,000-----	23	290	3.6	28	244	8.4	26	99	4.1	16	302	10.8	28	300	5.9	29	180	3.1	30	276	6.0	30	269	23.1	30	75	4.3	31	190	2.8	14	264	25.0	31	229	8.8	
12,000-----	23	282	3.5	23	258	6.9	24	74	5.1	14	295	11.1	28	303	6.1	17	221	8.5	27	262	5.9	24	263	25.5	30	67	6.1	30	236	5.0	11	264	26.3				
14,000-----	20	285	4.1	20	268	9.6	20	74	4.8	13	297	9.5	28	304	6.2	11	227	8.4	26	287	4.5	15	274	25.6	30	73	5.6	27	232	4.0							
16,000-----	16	53	3.6	17	305	3.3	17	80	8.8				25	31	3.6			23	55	1.5	11	285	10.2	29	68	6.1	23	105	7.2								
18,000-----				13	8	1.6	14	93	13.4				24	73	5.6			19	90	5.4																	
20,000-----							12	82	19.7				20	78	9.3			18	84	9.0																	
22,000-----													17	87	13.9			12	89	13.7																	
24,000-----													11	90	15.5			10	94	14.4																	
26,000-----																																					

	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Tatoosh Island, Wash. (33 m.)			Washington, D.C. (88 m.)
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## 30--Solar radiation intensities, tabulated in langleys per minute.

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Date	Sun's zenith distance									Vapor pressure, E. S. T.			
	A. M.				0.0°	P. M.				7:30 a. m.	1:30 p. m.		
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°				
TABLE MOUNTAIN, CALIF.													
	Air mass									Mb	Mb.		
	3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76				
July 1	---	---	---	1.44	---	---	---	---	---	Mb	Mb.		
2	---	---	---	1.38	---	---	---	---	---				
3	---	---	---	1.40	---	---	---	---	---				
4	---	---	---	1.34	---	---	---	---	---				
6	---	---	---	1.50	---	---	---	---	---				
7	---	---	---	1.38	---	---	---	---	---				
8	---	---	---	1.38	---	---	---	---	---				
10	---	---	---	1.36	---	---	---	---	---				
12	---	---	---	1.44	---	---	---	---	---				
13	---	---	---	1.44	---	---	---	---	---				
14	---	---	---	1.35	---	---	---	---	---				
15	---	---	---	1.33	---	---	---	---	---				
16	---	---	---	1.33	---	---	---	---	---				
18	---	---	---	1.34	---	---	---	---	---				
20	---	---	---	1.37	---	---	---	---	---				
22	---	---	---	1.29	---	---	---	---	---				
Averages	---	---	---	1.38	---	---	---	---	---				
Departures	---	---	---	-.03	---	---	---	---	---				
BLUE HILL, MASS.													
	Air mass									Mb.	Mb.		
	4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86				
July 1	---	---	---	1.26	---	1.20	1.08	0.96	0.84	Mb.	Mb.		
2	0.86	---	---	---	---	1.17	1.02	---	---				
3	---	---	---	1.08	---	1.03	.85	---	---				
6	.78	0.88	1.00	1.16	---	1.14	.96	.84	.73				
7	.73	.82	.96	1.13	---	---	---	---	---				
16	.83	.91	1.00	1.12	---	1.16	.92	.80	---				
20	.66	.81	.92	1.13	---	---	---	---	---				
24	---	---	.91	1.21	---	---	---	---	---				
25	.94	1.07	1.14	1.27	---	---	---	---	---				
26	.73	.85	.99	1.16	---	---	---	---	---				
Averages	.79	.89	.99	1.17	---	1.14	.97	.87	.79				
Departures	+.14	+.16	+.11	+.13	---	+.11	+.12	+.16	+.16				
BOSTON, MASS.													
	Air mass											Mb.	Mb.
	4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96				
NO DATA DURING JULY 1952													
TACUBAYA, D.F., MEXICO													
	Air mass									Mb.	Mb.		
	3.83	3.07	2.31	1.53	*0.77	1.53	2.31	3.07	3.83				
NO DATA DURING JULY 1952													

radiation intensities are expressed in gram-calories per minute per centimeter of normal surface.

Planation of Tables 30 and 31 and references to descriptions of instruments, and methods of observation, and to summaries of data, are given

in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.



# SOLAR RADIATION DATA

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Table 31a.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

Date-----	2	3	4	5	6	7	8	Aver-	9	10	11	12	13	14	15	Aver-	16	17	18	19	20	21	22	Aver-
Langleys-----	246	258	269	245	263	267	273	age	264	143	179	276	288	281	289	age	290	267	257	212	245	121	241	age
								260								246								233
Date-----	23	24	25	26	27	28	29	Aver-																
Langleys-----	272	283	283	293	164	269	228	age																
								256																

Table 31b.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during the month

Date-----	2	3	4	5	6	7	8	Aver-	9	10	11	12	13	14	15	Aver-	16	17	18	19	20	21	22	Aver-
Langleys-----	188	176	186	163	166	152	157	age	160	113	148	163	161	150	149	age	149	145	165	144	153	101	125	age
								170								149								140
Date-----	23	24	25	26	27	28	29	Aver-																
Langleys-----	130	121	135	146	121	127	104	age																
								126																

Table 31c.-Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

Date-----	2	3	4	5	6	7	8	Aver-	9	10	11	12	13	14	15	Aver-	16	17	18	19	20	21	22	Aver-
Langleys-----	100	129	215	225	150	131	251	age	202	200	258	189	116	102	101	age	167	138	90	202	201	155	187	age
								171								167								162
Date-----	23	24	25	26	27	28	29	Aver-																
Langleys-----	75	64	52	93	181	158	220	age																
								121																

Note.-Langley is the unit used to denote one gram calorie per square centimeter.



## JULY 1952

JULY 1952

Accumulated Departures January 1 to July 29, 1952

Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.



## SOLAR RADIATION DATA

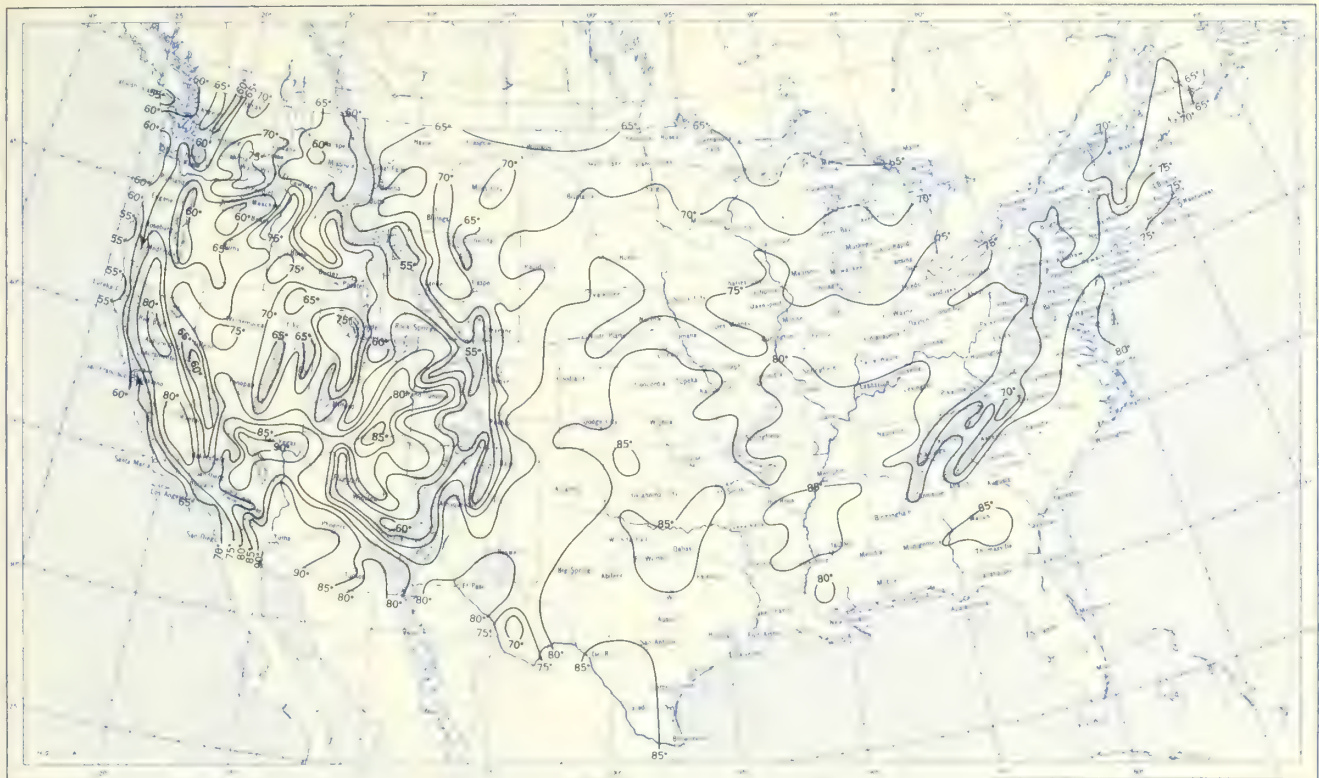
Table 33—Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langley's.—Continued

		1952		1953		1954		1955		1956		1957		1958		1959		1960		1961		1962		1963		1964		1965		1966		1967		1968		1969		1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981		1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023		2024		2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035		2036		2037		2038		2039		2040		2041		2042		2043		2044		2045		2046		2047		2048		2049		2050		2051		2052		2053		2054		2055		2056		2057		2058		2059		2060		2061		2062		2063		2064		2065		2066		2067		2068		2069		2070		2071		2072		2073		2074		2075		2076		2077		2078		2079		2080		2081		2082		2083		2084		2085		2086		2087		2088		2089		2090		2091		2092		2093		2094		2095		2096		2097		2098		2099		2100		2101		2102		2103		2104		2105		2106		2107		2108		2109		2110		2111		2112		2113		2114		2115		2116		2117		2118		2119		2120		2121		2122		2123		2124		2125		2126		2127		2128		2129		2130		2131		2132		2133		2134		2135		2136		2137		2138		2139		2140		2141		2142		2143		2144		2145		2146		2147		2148		2149		2150		2151		2152		2153		2154		2155		2156		2157		2158		2159		2160		2161		2162		2163		2164		2165		2166		2167		2168		2169		2170		2171		2172		2173		2174		2175		2176		2177		2178		2179		2180		2181		2182		2183		2184		2185		2186		2187		2188		2189		2190		2191		2192		2193		2194		2195		2196		2197		2198		2199		2200		2201		2202		2203		2204		2205		2206		2207		2208		2209		2210		2211		2212		2213		2214		2215		2216		2217		2218		2219		2220		2221		2222		2223		2224		2225		2226		2227		2228		2229		2230		2231		2232		2233		2234		2235		2236		2237		2238		2239		2240		2241		2242		2243		2244		2245		2246		2247		2248		2249		2250		2251		2252		2253		2254		2255		2256		2257		2258		2259		2260		2261		2262		2263		2264		2265		2266		2267		2268		2269		2270		2271		2272		2273		2274		2275		2276		2277		2278		2279		2280		2281		2282		2283		2284		2285		2286		2287		2288		2289		2290		2291		2292		2293		2294		2295		2296		2297		2298		2299		2300		2301		2302		2303		2304		2305		2306		2307		2308		2309		2310		2311		2312		2313		2314		2315		2316		2317		2318		2319		2320		2321		2322		2323		2324		2325		2326		2327		2328		2329		2330		2331		2332		2333		2334		2335		2336		2337		2338		2339		2340		2341		2342		2343		2344		2345		2346		2347		2348		2349		2350		2351		2352		2353		2354		2355		2356		2357		2358		2359		2360		2361		2362		2363		2364		2365		2366		2367		2368		2369		2370		2371		2372		2373		2374		2375		2376		2377		2378		2379		2380		2381		2382		2383		2384		2385		2386		2387		2388		2389		2390		2391		2392		2393		2394		2395		2396		2397		2398		2399		2400		2401		2402		2403		2404		2405		2406		2407		2408		2409		2410		2411		2412		2413		2414		2415		2416		2417		2418		2419		2420		2421		2422		2423		2424		2425		2426		2427		2428		2429		2430		2431		2432		2433		2434		2435		2436		2437		2438		2439		2440		2441		2442		2443		2444		2445		2446		2447		2448		2449		2450		2451		2452		2453		2454		2455		2456		2457		2458		2459		2460		2461		2462		2463		2464		2465		2466		2467		2468		2469		2470		2471		2472		2473		2474		2475		2476		2477		2478		2479		2480		2481		2482		2483		2484		2485		2486		2487		2488		2489		2490		2491		2492		2493		2494		2495		2496		2497		2498		2499		2500		2501		2502		2503		2504		2505		2506		2507		2508		2509		2510		2511		2512		2513		2514		2515		2516		2517		2518		2519		2520		2521		2522		2523		2524		2525		2526		2527		2528		2529		2530		2531		2532		2533		2534		2535		2536		2537		2538		2539		2540		2541		2542		2543		2544		2545		2546		2547		2548		2549		2550		2551		2552		2553		2554		2555		2556		2557		2558		2559		2560		2561		2562		2563		2564		2565		2566		2567		2568		2569		2570		2571		2572		2573		2574		2575		2576		2577		2578		2579		2580		2581		2582		2583		2584		2585		2586		2587		2588		2589		2590		2591		2592		2593		2594		2595		2596		2597		2598		2599		2600		2601		2602		2603		2604		2605		2606		2607		2608		2609		2610		2611		2612		2613		2614		2615		2616		2617		2618		2619		2620		2621		2622		2623		2624		2625		2626		2627		2628		2629		2630		2631		2632		2633		2634		2635		2636		2637		2638		2639		2640		2641		2642		2643		2644		2645		2646		2647		2648		2649		2650		2651		2652		2653		2654		2655		2656		2657		2658		2659		2660		2661		2662		2663		2664		2665		2666		2667		2668		2669		2670		2671		2672		2673		2674		2675		2676		2677		2678		2679		2680		2681		2682		2683		2684		2685		2686		2687		2688		2689		2690		2691		2692		2693		2694		2695		2696		2697		2698		2699		2700		2701		2702		2703		2704		2705		2706		2707		2708		2709		2710		2711		2712		2713		2714		2715		2716		2717		2718		2719		2720		2721		2722		2723		2724		2725		2726		2727		2728		2729		2730		2731		2732		2733		2734		2735		2736		2737		2738		2739		2740		2741		2742		2743		2744		2745		2746		2747		2748		2749		2750		2751		2752		2753		2754		2755		2756		2757		2758		2759		2760		2761		2762		2763		2764		2765		2766		2767		2768		2769		2770		2771		2772		2773		2774		2775		2776		2777		2778		2779		2780		2781		2782		2783		2784		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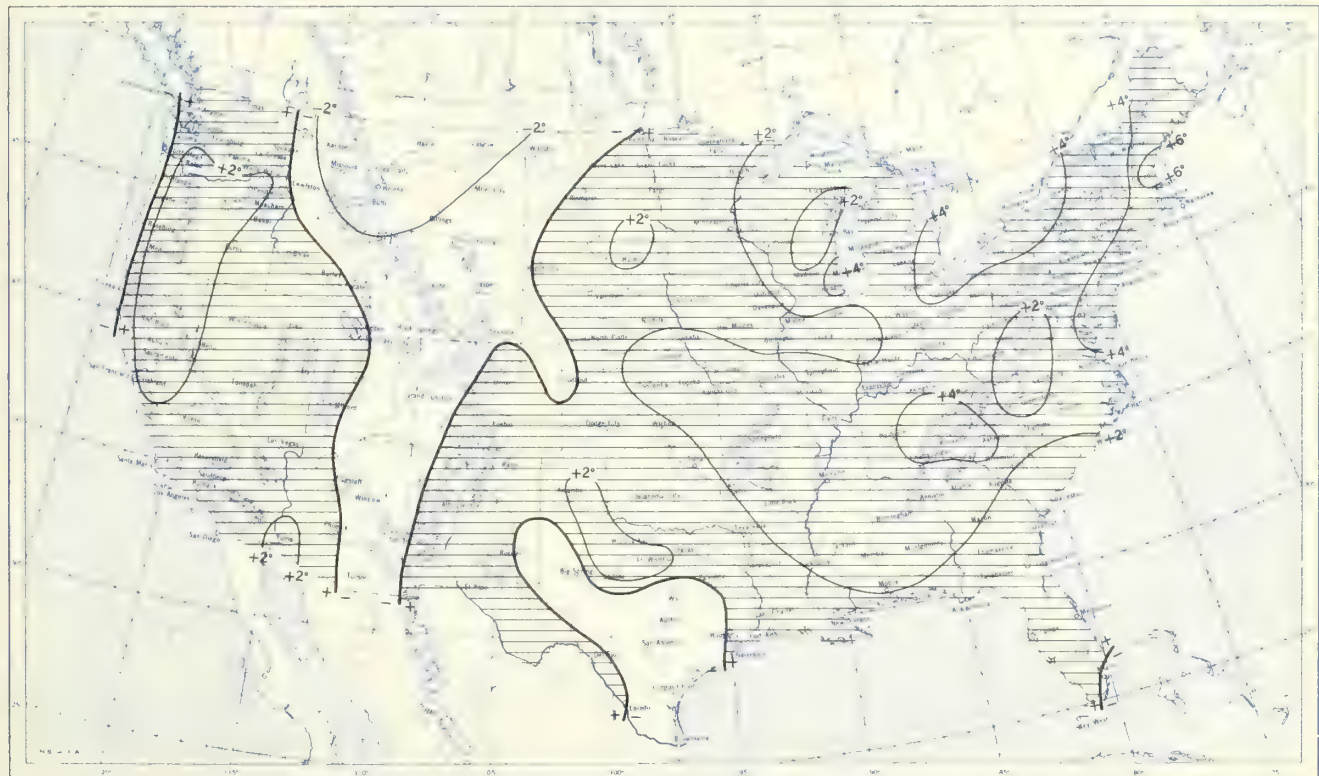
Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.



Chart I. A. Average Temperature ( $^{\circ}\text{F.}$ ) at Surface, July 1952.



B. Departure of Average Temperature from Normal ( $^{\circ}\text{F.}$ ), July 1952.

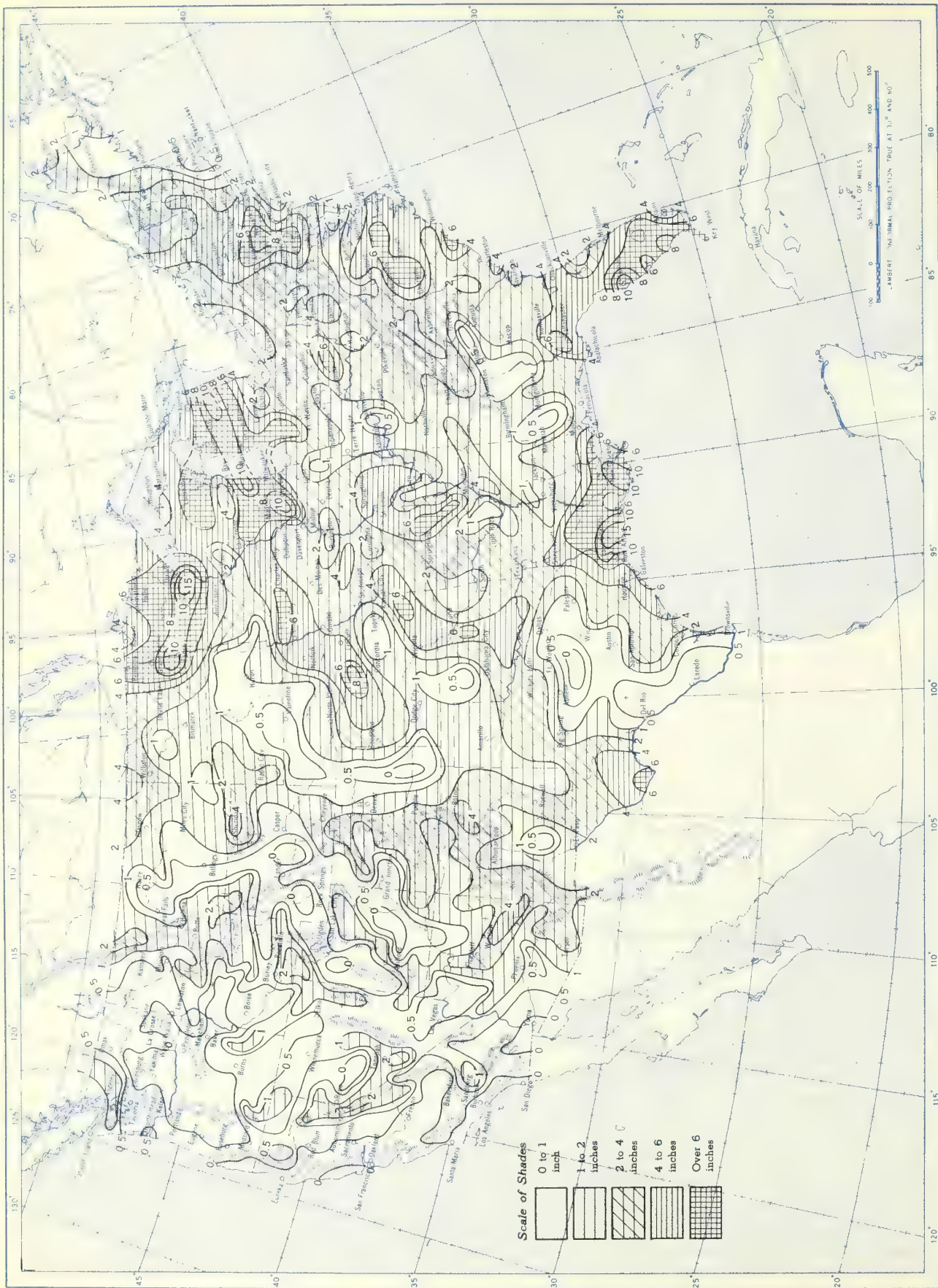


A. Based on reports from 800 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Normal average monthly temperatures are computed for Weather Bureau stations having at least 10 years of record.



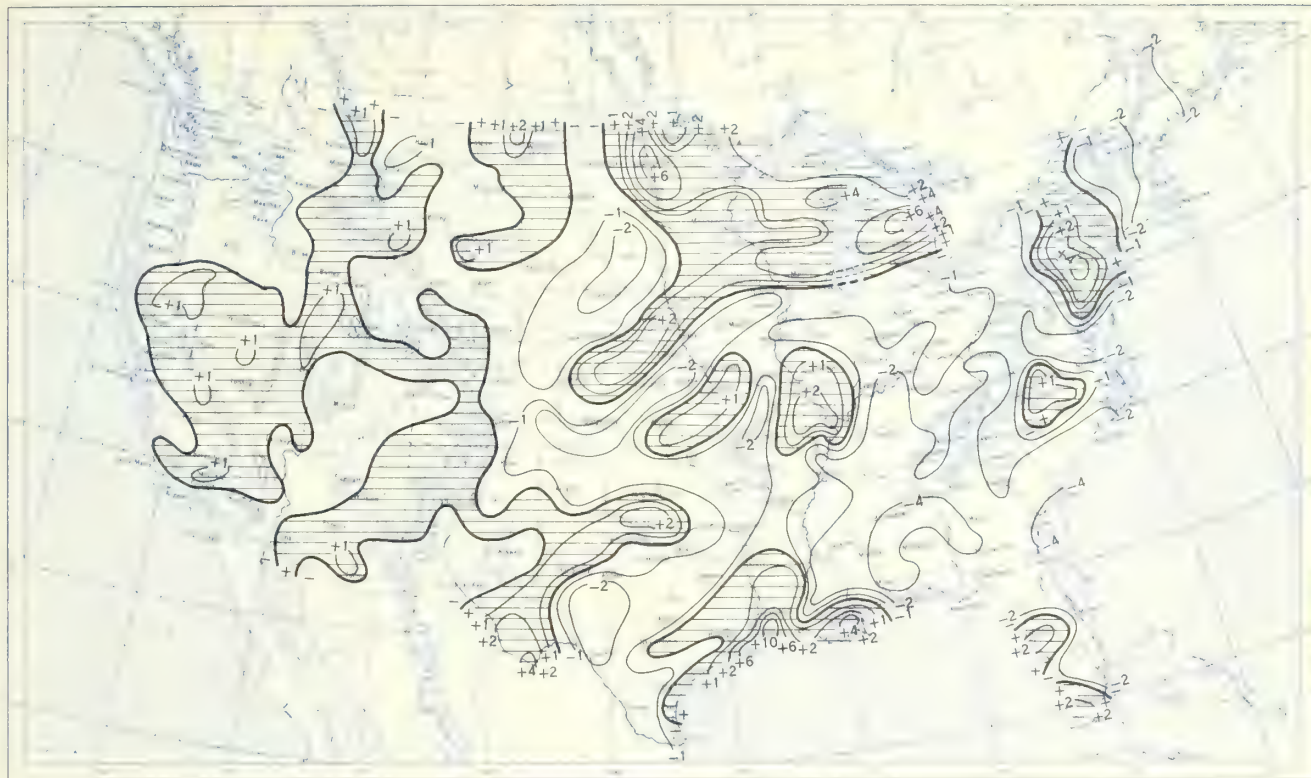
Chart II. Total Precipitation (Inches), July 1952.



Based on daily precipitation records at 800 Weather Bureau and cooperative stations.



Chart III. A. Departure of Precipitation from Normal (Inches), July 1952.



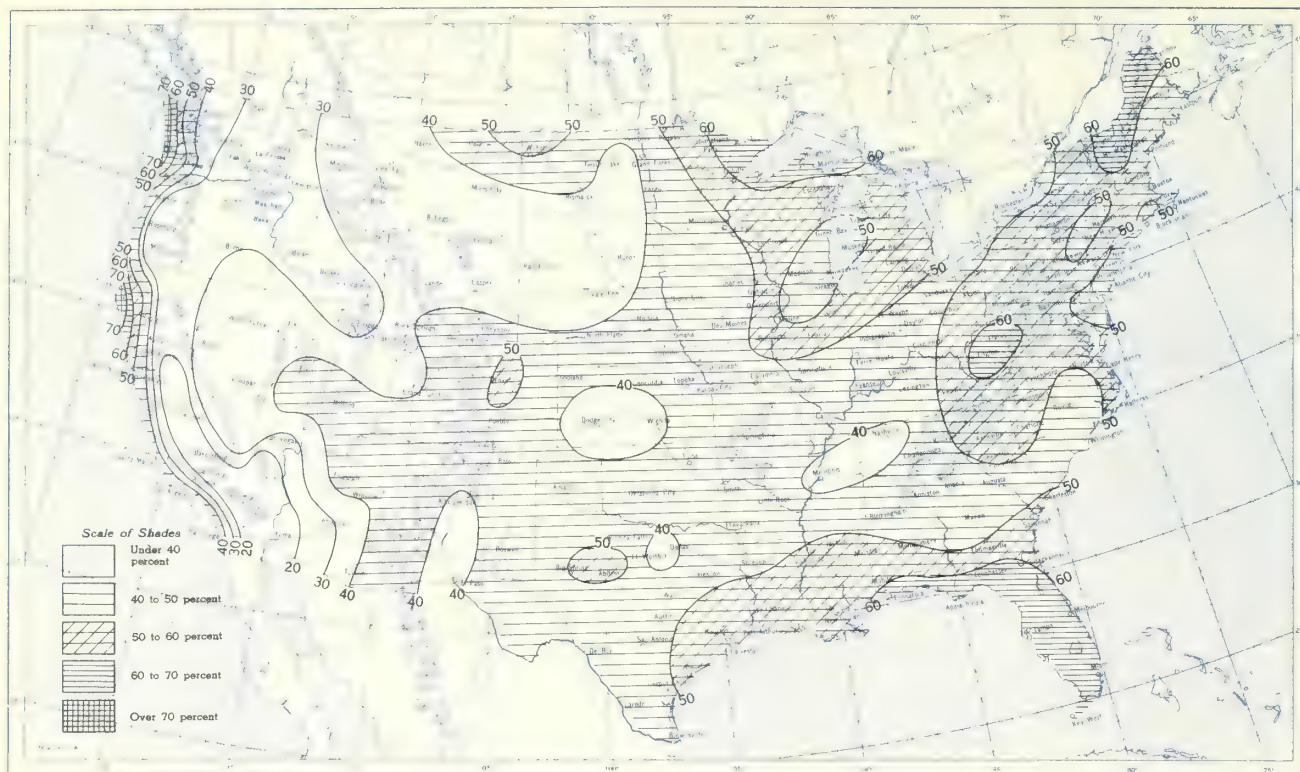
B. Percentage of Normal Precipitation, July 1952.



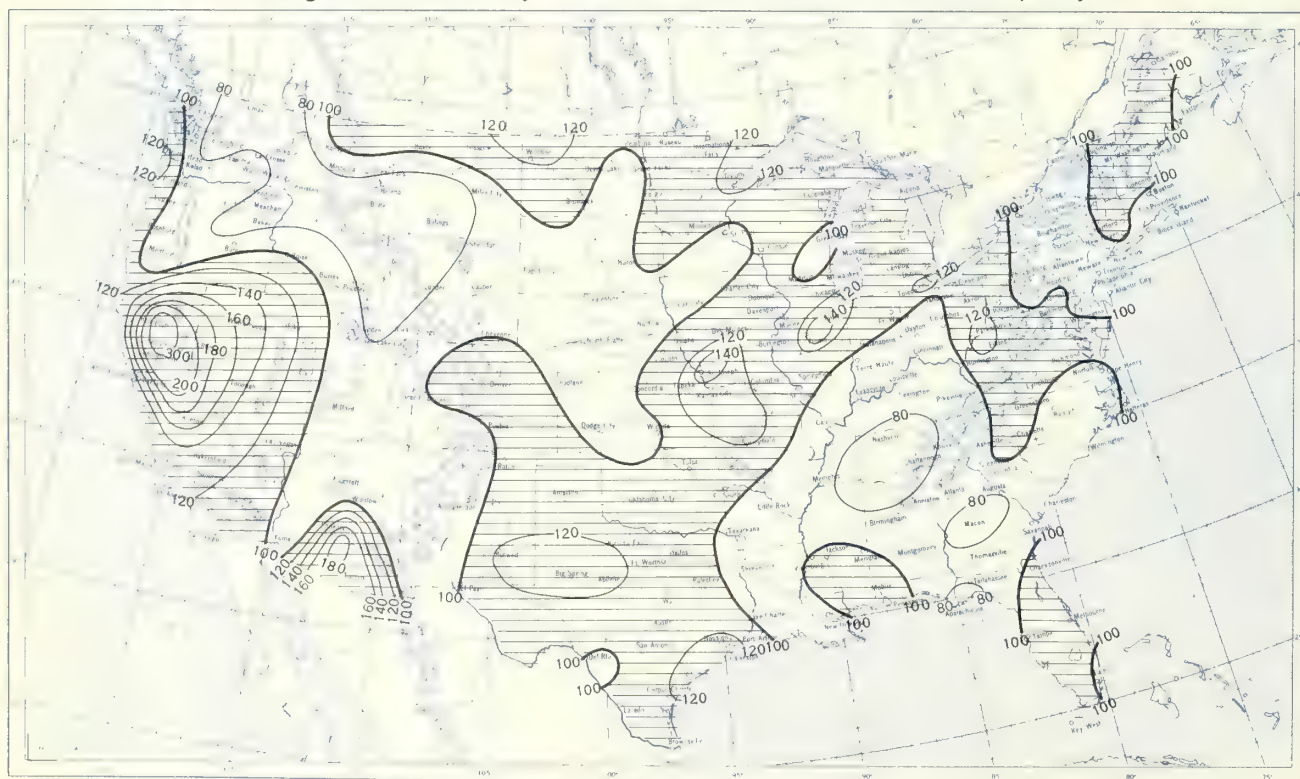
Normal monthly precipitation amounts are computed for stations having at least 10 years of record.



Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, July 1952.



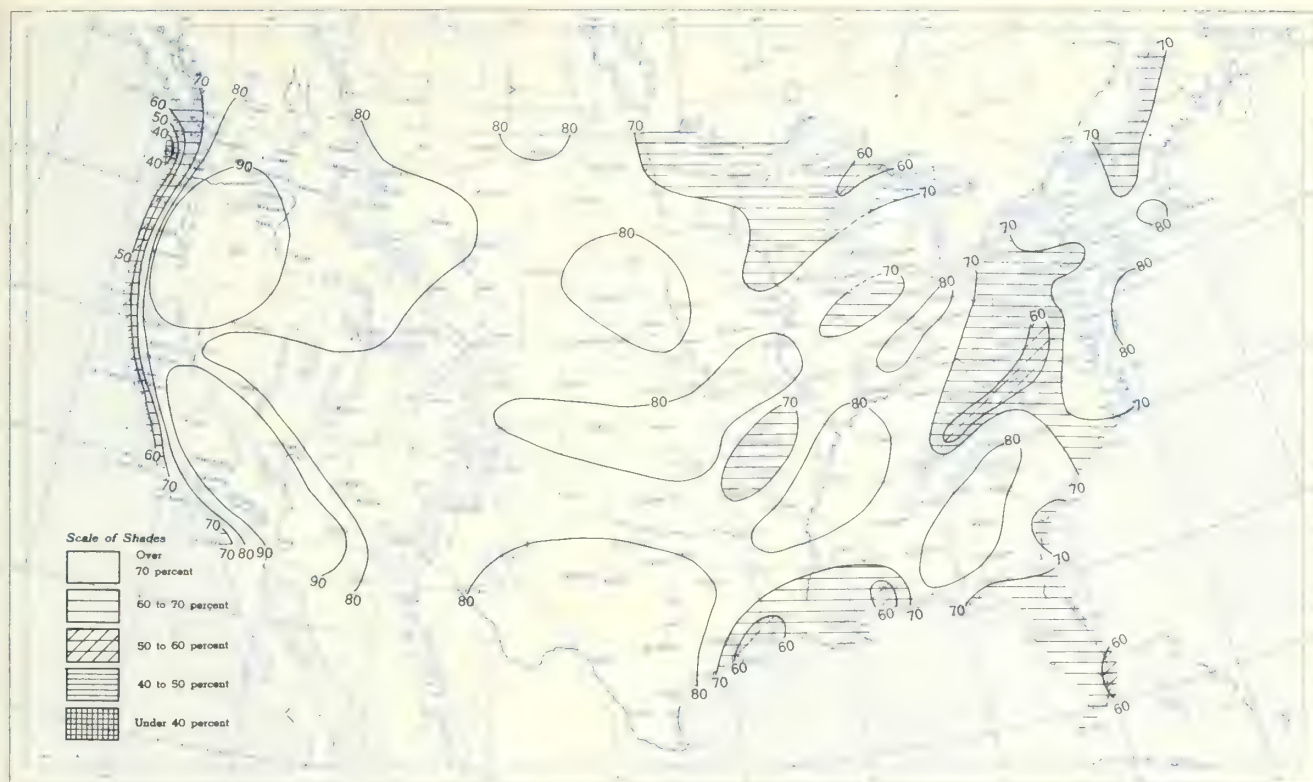
B. Percentage of Normal Sky Cover Between Sunrise and Sunset, July 1952.



A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.



Chart VII. A. Percentage of Possible Sunshine, July 1952.



B. Percentage of Normal Sunshine, July 1952.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.



Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, July 1952. Inset: Percentage of Normal Average Daily Solar Radiation, July 1952.

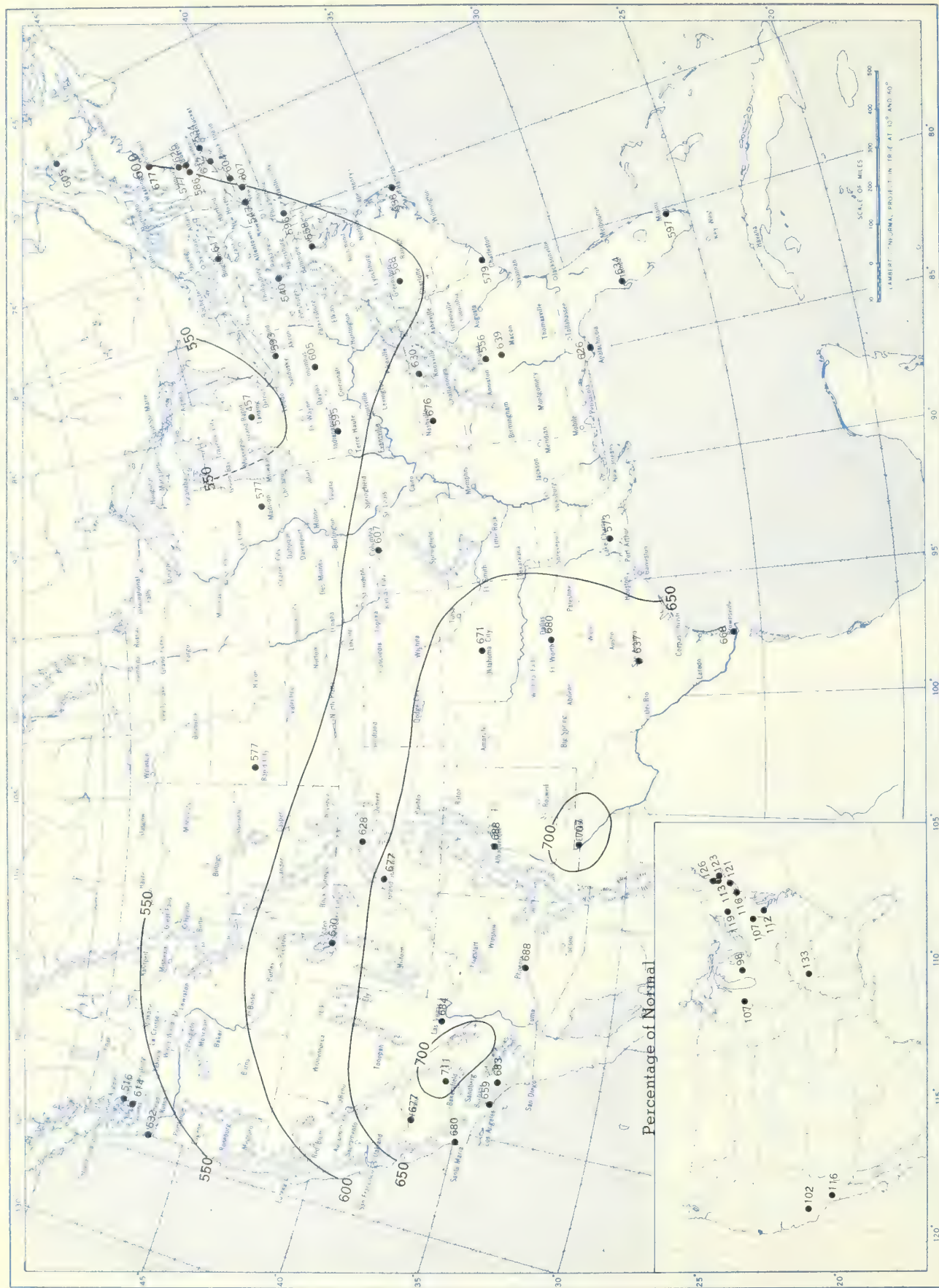


Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langley (1 langley = 1 gm. cal. cm.⁻²). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown. Normals



Chart IX. Tracks of Centers of Anticyclones at Sea Level, July 1952.

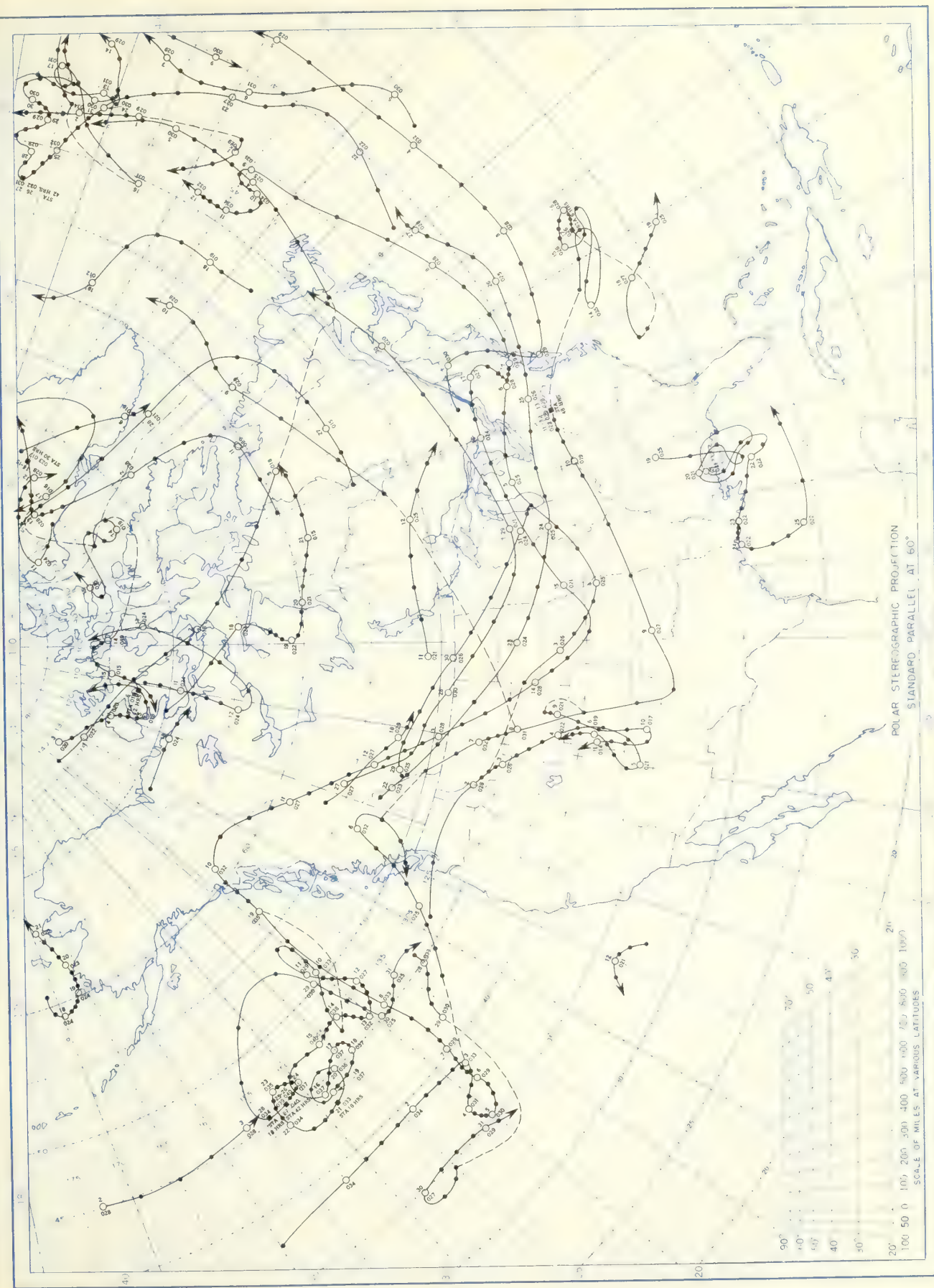




Chart X. Tracks of Centers of Cyclones at Sea Level, July 1952.



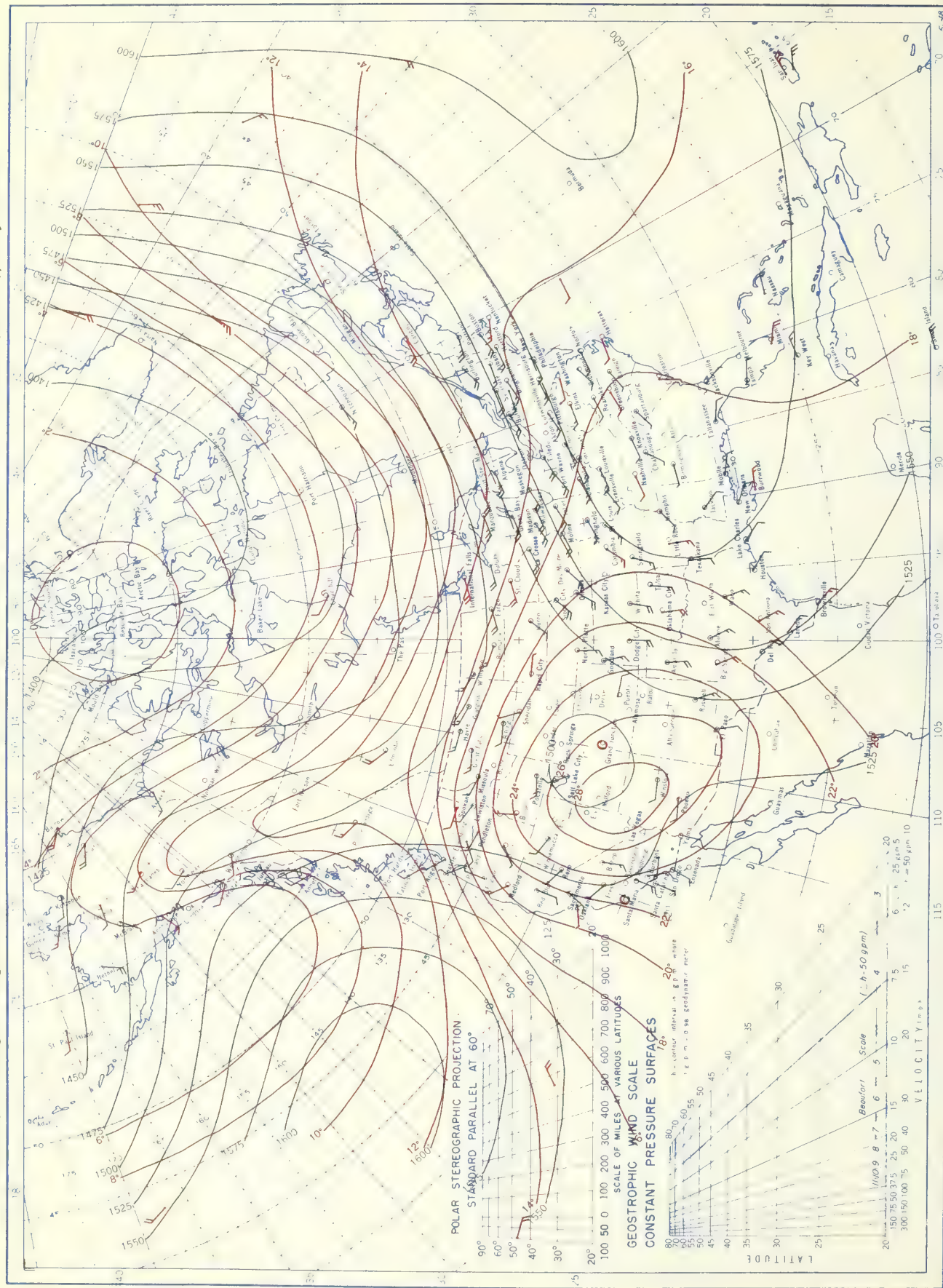




Average sea level pressures are obtained from the averages of the 7:30 a. m. and 7:30 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.



Chart XII. Average Dynamic Height in Geopotential Meters (1 g. p. m. = 0.98 dynamic meters) of the 850-mb. Pressure Surface, Average Temperature in °C. at 850 mb., and Resultant Winds at 1500 Meters (m. s. l.), July 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawine taken at 0900 G. M. T.



ORIGINAL DATA: AVERAGE DYNAMIC HEIGHT IN GEOPHYSICAL UNITS (m.s.l.), July 1952.  
 those shown in red are based on rawins taken at 0300 G. M. T.

Surface, Average Temperature in °C. at 700 mb., and Resultant Winds at 3000 Meters (m.s.l.), July 1952.

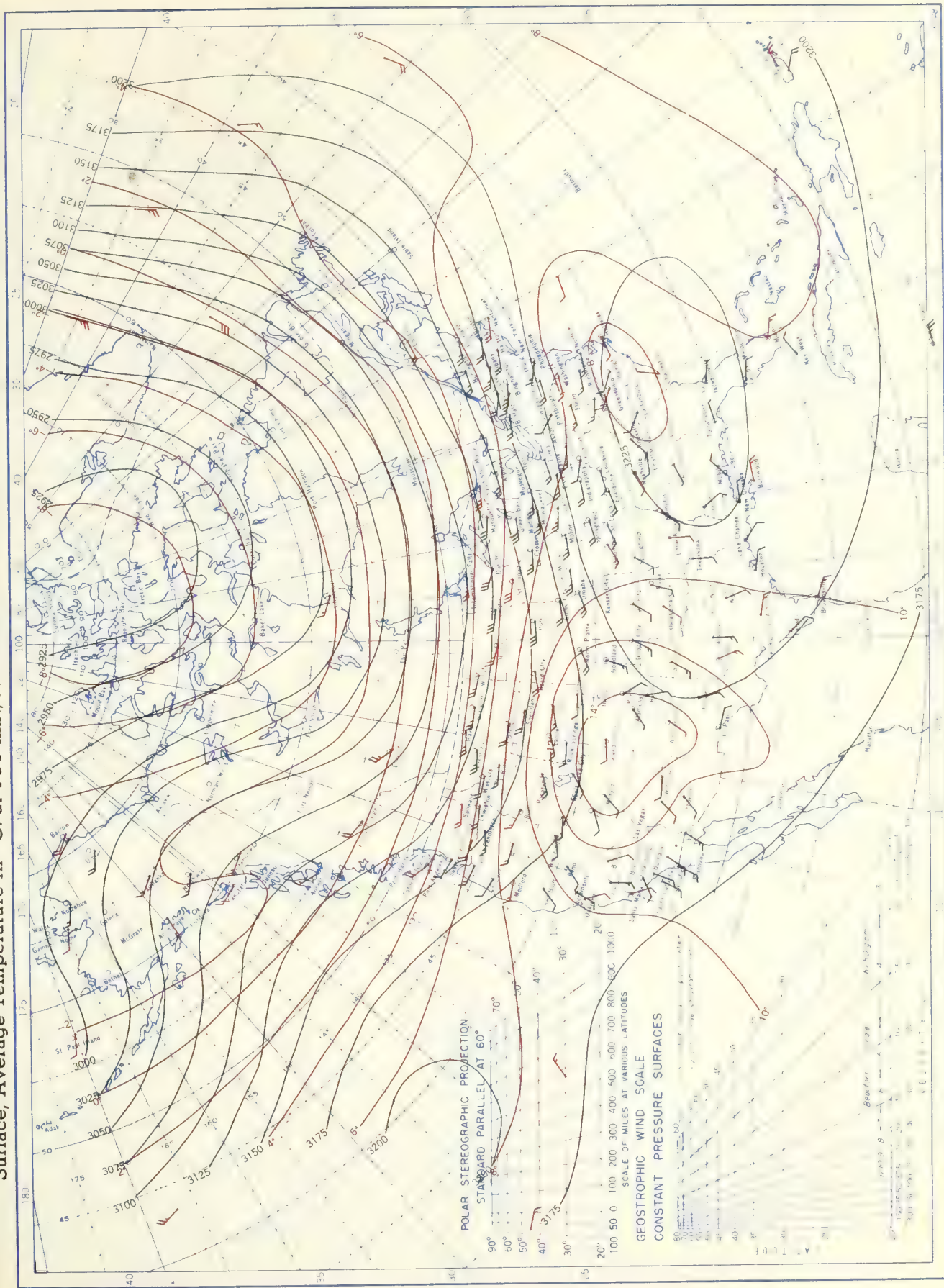
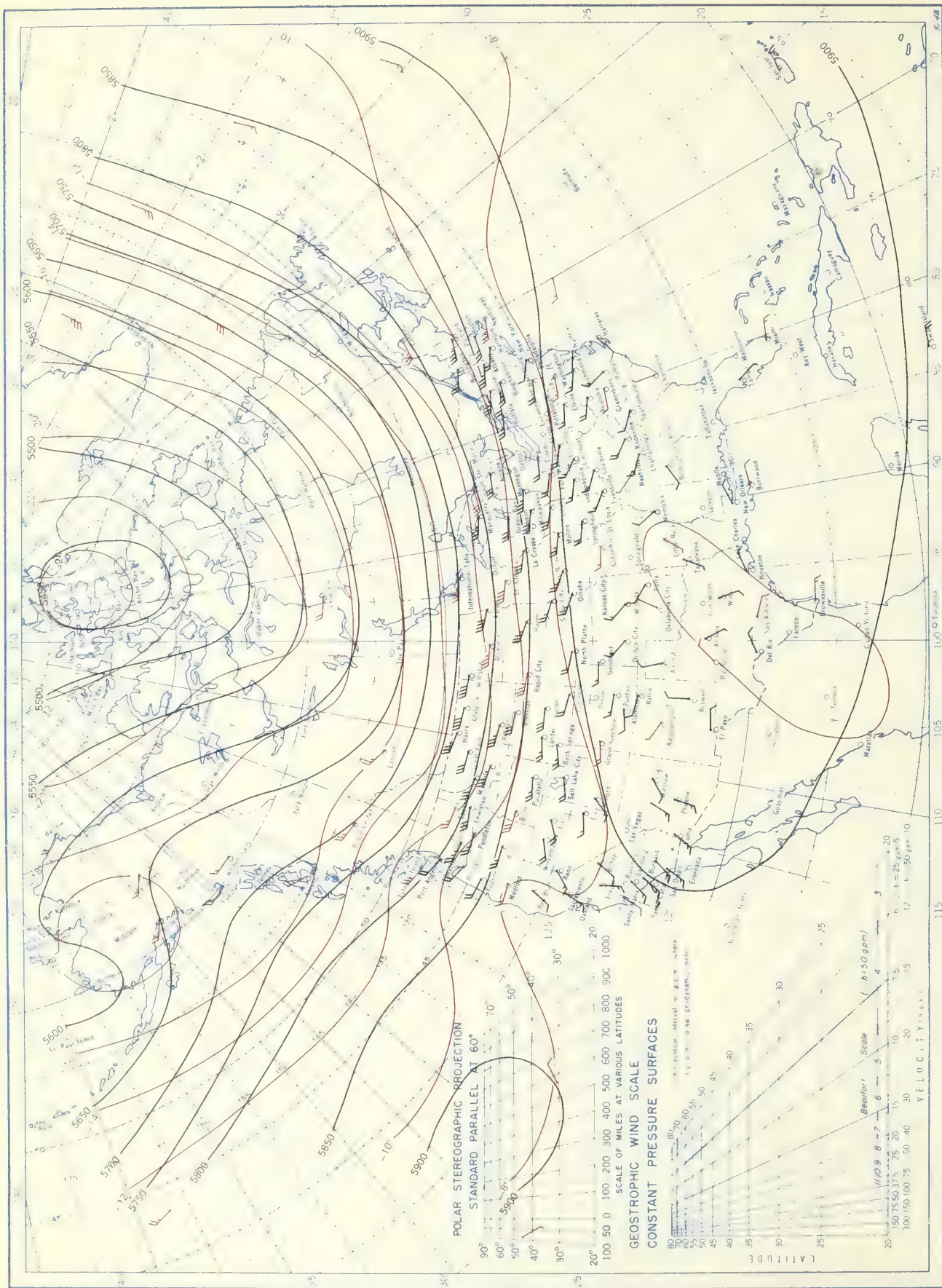




Chart XIV. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 500-mb. Pressure Surface, Average Temperature in C. at 500 mb., and Resultant Winds at 5000 Meters (m.s.l.), July 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T.



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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

AUGUST 1952

Volume 3 No. 8





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NOTE:--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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## CLIMATOLOGICAL DATA

### NATIONAL SUMMARY

Volume 3 No. 8

AUGUST 1952

#### GENERAL SUMMARY OF WEATHER CONDITIONS

The drought-breaking rains east of the Mississippi were the most important weather feature of August. Also, for the first time since March, the monthly rainfall was above the monthly average for the United States. Nevertheless, drought conditions persisted in Texas and in most adjacent states where crop deterioration was intensified by the high August temperatures of that region. Nation-wide temperature averages remained above normal for the fourth consecutive month. Sunshine was deficient in the East, particularly in the southern Appalachian region, but in contrast, sunshine was abundant in Texas where 96% of the amount possible (a new August record) was recorded at Austin. Except in Florida, August thunderstorms were more numerous than usual in the Southeast as they were also in the central and northern portions of the Great Plains, and in the central and lower Rocky Mountain region.

**PRECIPITATION:** August rains in the East improved the overall crop outlook, but many early-maturing crops in the South, such as corn and vegetables, had already been damaged beyond recovery by drought, particularly in Mississippi, Alabama, Georgia, and Tennessee. These rains totaled up to 3 inches in the lower Mississippi Valley and thence northward through the Great Lakes region and in most of the Northeastern States. Greater monthly totals of 4 to more than 6 inches fell over most of the remaining Eastern States. Among the greatest monthly totals reported in this area were the following: Bridgeport, Conn., 13.29; Dover, Del., 10.93; Preston, Md., 11.00; Lake Toxaway, N.C., 16.23; Kershaw, S.C., 18.55; Flat Top, Ga., 15.53; and Carrabelle, Fla., 20.05 inches. The bulk of the rainfall occurred during the first 20 days. On the 3rd and 4th and on the 8th and 9th heavy rains were rather general in the upper Mississippi Valley and the Great Lakes region. Additional rain fell from the 6th to the 8th along the Atlantic Coast and in the South and again on the 28th in the Carolinas.

Rainfall was generally below normal in most areas west of the Mississippi. Monthly totals in the Pacific States, in most of the western Plateau, in Texas, and in southwestern Oklahoma were generally less than a few hundredths of an inch. This was true also in some sections of the Dakotas and southeastern Montana. In California 410 stations recorded no precipitation at all, and the greatest monthly total at any one location was 1.43 inches. In the east-central portions of the Great Plains, and in the central and upper portions of the Mississippi Valley, monthly totals generally exceeded 4 inches and ranged upward to individual point values of 7.79 inches in Minnesota, 8.35 inches in Wisconsin, 10.82 inches in Missouri, 10.65 inches in Iowa, and 13.08 inches in eastern Nebraska.

The poor condition of crops in the Texas area was due to the combination of deficient summer rainfall and high temperatures. In central Texas

by the end of August, rainfall was less than 25% of the normal summer rainfall and it was less than 50% of normal in other parts of Texas, in Mississippi, northern Louisiana, southern Arkansas and Oklahoma. Oklahoma pasture crops were only 46% of normal; corn was expected to produce less than one-half of the 1951 crop; sorghum grain production at the end of the month was estimated at 4 million bushels compared to 16 million in 1951; and estimates for the cotton crop were the lowest in many years. However, the dry, sunny weather favored cotton picking and harvesting in general, and the grain crop was practically harvested by the end of the month. Livestock continued in good condition in most of the far West although ranges in some sections were beginning to show the effects of lack of rain. The corn crop in the Main Belt was generally in good to excellent condition, except on the southeastern fringe of the Belt where the drought effects were plainly evident. On September 1 the Bureau of Agricultural Economics predicted for Iowa a yield of 62 bushels of corn per acre, which would be a new record.

Since most of the month's rainfall was of the thundershower type, there were the usual reports of flash floods, mostly minor, although one caused \$95,000 damage in Enid, Okla., during the night of the 5th and 6th, and another washed out 2,000 feet of railway in Yakima County, Wash., on the 10th. Some other showers of high intensity were as follows: Ravenswood, W. Va., 3.55 inches in 1 hour and 15 minutes on the 9th; McCalla, Ala., 1.36 in 45 minutes on the 14th; Portales, N. Mex., 5.15 in 3 hours on the 11th; Copper Mine Trading Post in Arizona, 1.16 in 27 minutes on the 27th; Chardon, Ohio, 4.00 in 2 hours on the 15th; and Nobly, Mont., 2.00 inches in 1 hour on the 2d. On the 25th in the vicinity of Mt. Vernon, S. Dak., a 3-hour rain measured 5 inches and was unofficially estimated at 8.5 to 9 inches in one small area.

**TEMPERATURE:** High temperatures prevailed generally over the United States except in the upper Mississippi Valley and in the southern Piedmont region. Monthly averages ranged up to a high of 102.2° recorded in Death Valley, California. The highest single reading recorded was 122° at Cow Creek, Calif., on the 4th. The hottest days of the month occurred during the first week in the far West, including New Mexico and western Texas; about mid-month in the Great Plains and in the South; and near the end of the month in central and eastern Montana, in the Northeastern States, and in southern Florida. The temperature at Ft. Worth, Texas, averaged 91.1° (the highest on record), and on 27 days of the month the maximum temperature exceeded 100°. The state-wide average temperature for New Mexico was the highest on record for August. A high of 110° at Eupora, Miss., on the 17th was among the highest temperatures ever recorded in Mississippi during August. The summer of 1952 ended as one of the hottest on record in



## GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

AUGUST 1952

the lower Great Plains and in the South. From the lower Ohio Valley southward to central Alabama and westward through the Great Plains the average summer (June, July, August) temperature was 6° above normal at many stations.

Minimum temperatures below freezing were reported at a few locations in the Dakotas on the 11th, in the upper Great Lakes region on the 22d and 23d, and in the extreme Northeast on the 24th, 25th, and 31st. Light frost occurred locally in up-State New York on the 8th, at some high elevations in Pennsylvania about the 25th, and in areas around Reno, Nev., on the 15th and 27th. The lowest temperature recorded for the month was 18° at Seneca, Oreg., on the 27th and at Bondurant, Wyo., on the 31st.

**DESTRUCTIVE STORMS:** Severe storms during August included one hurricane, more than twice the average number of tornadoes, numerous wind squalls, a few major hailstorms, and several electrical storms. At least 28 persons lost their lives and 40 were injured as a result of these storms. Most of the

hurricane damage occurred in South Carolina on the 30th and 31st, with estimated damage of \$700,000 to property and communications and \$1,500,000 to crops. On the 21st a tornado struck Sedalia, Mo., while the State fair was in progress and killed 1 person, injured 13, and caused over \$1,000,000 damage. In Nebraska on the 13th, a series of tornadoes injured several persons and caused at least \$573,000 damage. Hailstorms resulted in damages estimated at \$655,000 in Nance and Boone Counties, Nebr., on the afternoon of the 17th; some stones as large as baseballs were reported. Million-dollar hailstorms occurred in Kentucky on the 1st and in Iowa on the 20th. The most destructive storm of the month was a combination of high wind, hail, lightning, and heavy rain on the night of August 5-6 in north central Oklahoma; this storm did \$2,500,000 damage, of which \$2,000,000 occurred in the city of Enid alone. Nearly every roof in the city was reported to have been damaged by hail that ranged from golf ball to baseball size.



# CONDENSED CLIMATOLOGICAL SUMMARY

AUGUST 1952

Table 1

Section	Temperature								Precipitation					
	Average	Departure from normal	Monthly extremes						Average	Departure from normal	Monthly extremes			
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least
	*F.	*F.		*F.			*F.		In.	In.		In.		In.
Alabama	80.2	+0.5	Atmore State Farm	104	13	2 Stations	50	28	6.64	+2.01	Boaz	12.98	Cuba	1.10
Arizona	79.5	+1.2	3 Stations	116	12	Maverick	35	29	1.82	-.29	Crown King	7.91	6 Stations	.00
Arkansas	81.1	+1.1	Conway	110	17	Marshall	50	25	3.53	-.06	Rogers	10.83	Madison	.82
California	75.3	+5	Cow Creek	122	4	2 Stations	26	27	.03	-.14	Harrison Gulch RS	1.43	410 Stations	.00
Colorado	67.1	+1.2	Eversoll Ranch	105	16	Fraser	24	31	2.19	+.29	Cimarron 3SE	7.69	Doherty Ranch	.24
Connecticut	70.0	+.9	2 Stations	92	27	Mansfield Hollow Dam	36	24	7.98	+3.83	Bridgeport WB AP	13.29	West Hartland	4.14
Delaware	74.4	.0	Georgetown	94	5	Millsboro	41	24	6.10	+1.30	Dover	10.93	Wilmington-New Castle WB AP	3.09
Florida	81.9	+5	DeFuniak Springs	102	18	2 Stations	60	27	7.50	+.41	Carrabelle	20.05	Dry Tortugas	1.06
Georgia	79.8	.0	2 Stations	104	17	Blairsville Exp. Sta.	45	27	6.39	+1.10	Flat Top	15.53	Augusta	2.40
Idaho	66.9	+3.3	3 Stations	103	5	Alpha 1NE	22	28	.30	-.28	Spencer RS	1.95	18 Stations	.00
Illinois	73.7	-.9	Elizabethtown	100	17	Stockton	43	23	2.97	-.39	Avon	8.38	Palestine	.76
Indiana	72.8	-.9	Oolitic Purdue Exp.	101	3	2 Stations	40	23	2.92	-.40	Winamac	5.70	Henryville	1.05
Iowa	70.0	-2.6	Alton	96	1	Saratoga 2E	39	12	4.78	+1.02	Audubon	10.65	Eldora	1.43
Kansas	79.6	+1.3	2 Stations	111	17	Anthony	46	6	3.17	+.06	Centralia	9.11	Burdett 6SSE	.60
Kentucky	76.3	+5.5	3 Stations	103	3	Cynthiana 2	40	24	3.45	-.26	Hindman Settlement School	8.80	Turkey Creek School	.77
Louisiana	82.9	+1.1	Lake Providence	107	18	Logansport	52	29	2.99	-1.87	Buras	12.59	Bessmer	.22
Maine	67.2	+2.0	Old Town	100	28	Millinocket	32	31	2.64	-.59	Nachias	7.13	Madison	.85
Maryland	74.1	+7	Huntingtown	96	5	2 Stations	23	23	5.72	+1.29	Preston 1S	11.00	Cumberland Pol.Brks.	2.05
Massachusetts	69.6	+.9	Adams	99	28	Turners Falls	34	24	6.32	+2.65	Pembroke	9.71	South Egremont	2.97
Michigan	66.8	-.3	4 Stations	95	18	Vanderbilt Trout Sta.	28	23	3.36	+.43	Rock	7.68	Ann Arbor	1.05
Minnesota	66.4	-.8	Hallcock	102	14	Cloquet For. Exp.Sta.	35	22	4.24	+.96	Fairmont 1S	7.79	Indus	.79
Mississippi	81.9	+1.1	Eupora	110	17	Forest	48	29	2.92	-1.18	Brooklyn 2SE	7.17	Sledge	.25
Missouri	75.7	-.8	3 Stations	104	17	Louisiana Stark Mur.	40	24	5.12	+1.34	Woberly	10.82	Morehouse	1.11
Montana	65.5	-.5	Hardin	109	24	2 Stations	24	26	.98	-.13	Babb 6NE	3.45	Birney 11E	.07
Nebraska	73.9	+.4	Balsey 3W	107	27	do	37	31	3.45	+.75	Tecumseh	13.08	Arthur	.07
Nevada	72.3	+.8	Overton	115	3	Deeth	25	31	.18	-.32	Pioche	1.66	18 Stations	.00
New Hampshire	66.7	+1.1	4 Stations	96	27	2 Stations	34	24	3.16	-.34	Nashua 3N	8.12	West Lebanon	1.19
New Jersey	72.7	+.6	Camden	95	30	Layton 3NW	33	24	6.98	+2.28	Long Branch	10.97	Deepwater	3.17
New Mexico	74.4	+2.7	Jal	110	8	Red River	34	24	2.16	-.22	Los Alamos	11.18	Pearl	T
New York	68.0	+.2	2 Stations	99	28	Angelica	30	24	3.41	-.27	Bridgehampton	13.19	Watertown CAA AP	1.10
North Carolina	76.2	+.3	do	98	18	Boone	36	27	8.41	+2.88	Lake Toxaway	16.28	Celo TVA	2.50
North Dakota	67.3	+.3	Ellendale	105	14	Sanish	31	11	2.31	+.24	Medina 1W	5.83	2 Stations	.37
Ohio	71.9	+.2	Peebles 1S	102	3	Mosquito Creek Dam	36	24	2.72	-.60	Chardon	7.79	New Lexington 2NW	.34
Oklahoma	85.1	+3.2	Hollis	114	31	2 Stations	51	25	2.38	-.54	South Grand Lake	8.46	Hollis	T
Oregon	65.8	+.2	The Dalles	106	4	Seneca	18	27	.21	-.23	Otis	2.67	25 Stations	.00
Pennsylvania	70.4	+.1	Everett	96	3	Kane 1NNE	30	24	4.08	-.01	Wernersville 1W	8.53	Elizabethtown 1SW	1.75
Rhode Island	71.0	+1.7	2 Stations	90	27	Kingston	41	24	8.88	+5.12	Kingston	13.56	Austin	6.18
South Carolina	78.7	-.2	do	101	17	Union 7SW	49	26	8.77	+3.03	Kershaw	18.55	Edgefield	2.18
South Dakota	71.1	.0	Van Metre	106	14	Ralph	30	11	2.03	-.08	Forestburg 3NE	6.17	Andover 7N	.26
Tennessee	77.8	+1.0	Moscow	103	17	Crossville Exp. Sta.	45	27	4.49	+.51	Copperhill Substa.	10.89	Moscow	1.13
Texas	85.9	+3.7	3 Stations	114	7	Bronson	54	29	.56	-1.79	Bravo	6.14	Numerous stations	.00
Utah	71.0	+1.1	St. George CAA AP	109	3	Soldier Summit	31	30	1.21	+.09	Moon Lake	4.59	Callao	.00
Vermont	66.3	+.9	Wildor	97	28	Cavendish	33	24	2.70	-.81	Readsboro 1SSE	4.86	Randolph Center	1.19
Virginia	74.1	+.1	2 Stations	96	5	Burkes Garden	35	25	5.99	+1.50	Meadows of Dan 5SW	14.30	Davenport	1.32
Washington	65.9	-.1	do	105	4	Chesaw	28	30	.61	-.10	Neah Bay 2E	5.15	8 Stations	.00
West Virginia	71.8	.0	Moorefield-McNeill	99	11	Canaan Valley	28	24	5.04	+.97	White Sulphur Spgs.	10.13	Kayford	1.38
Wisconsin	66.5	-.9	Prairie du Chien	95	14	Land O'Lakes	27	22	4.55	+1.11	Janesville Pwr. Sta.	8.35	Pine River Dam	1.90
Wyoming	65.3	+.7	Arvada 3N	102	25	Bondurant	18	31	1.21	+.16	Esterbrook	3.03	Atlantic City 13NE	T
Alaska	48.6	-1.3	5 Stations	83	26	2 Stations	21	2	1.40	-.13	Ketchikan	9.56	Wainwright	T
Hawaii	73.2	-1.2	Puunene CAA AP	94	18	Haleakala RS	38	26	5.45	+.11	Kahana	34.15	Puukoli	.00
Puerto Rico	79.3	+.4	Aguirre (5)	96	3	Garzas Dam	57	4	7.78	+.55	San Lorenzo Farm	17.19	Yauco	1.12

° Other dates also.

\* June 1952.

\*\* July 1952.



## CLIMATOLOGICAL DATA

Table 2

AUGUST 1952

State and station	Elevation (ground)	Pressure			Temperature										Precipitation										Wind				No. of days (sunrise to sunset)		Possible sunrise	
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		Date	Clear	Partly cloudy	Cloudy		Sky cover, tenths (sunrise to sunset)
												Max. 90° F. or above	Min. 32° F. or below						With thunderstorms	Total	Max. depth on ground	Speed			Direction							
FL	MB.	MB.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	%	In.	In.	In.	In.	In.	In.	In.	In.	In.	M. p. h.	M. p. h.			0-3	4-7	8-10	0-10	%		
ALABAMA																																
Anniston	599	993.9	1015.9	89	67	78.2	----	98	18	50	28	17	0	70	---	7.03	+2.98	3.97	13	14	0.0	0	4.0	E	*19	E	27	4	15	12	6.5	---
Birmingham	610	991.5	1016.3	90	69	79.5	+1.0	98	17	56	28	21	0	69	75	8.18	+3.92	5.13	12	13	0.0	0	6.1	NE	45	SE	1	7	12	12	6.1	50
Mobile CO	10	-----	-----	91	74	82.8	+1.9	99	17	66	28	20	0	---	---	7.91	+9.99	1.98	14	18	0.0	0	---	---	35	SE	6	5	20	6	5.9	60
Mobile	211	1008.1	1015.8	92	73	82.3	---	99	17	65	27	24	0	73	82	7.56	---	2.76	10	22	0.0	0	8.3	NE	---	---	5	20	6	6.0	---	
Montgomery CO	201	-----	-----	91	72	81.4	+6	99	18	63	27	19	0	---	---	4.04	-.19	1.32	11	12	0.0	0	---	---	---	---	5	7	8	16	6.5	85
Montgomery	198	1008.5	1015.8	91	71	81.2	+4	100	18	59	28	21	0	71	79	4.34	+1.11	1.38	11	13	0.0	0	5.6	ENE	41	SE	5	7	8	16	6.5	85
ARIZONA																																
Flagstaff	6993	791.4	1018.3	79	50	64.4	---	85	1	44	21	0	0	---	---	2.92	---	.59	15	23	T	T	---	---	---	---	---	4	17	10	6.4	---
Phoenix CO	1083	-----	-----	103	79	91.1	+2.6	110	2	68	24	31	0	---	---	1.41	+4.6	1.16	3	7	0.0	0	6.5	---	29	SE	27	---	---	---	89	
Phoenix	1108	971.6	1009.4	104	78	90.9	---	110	1	71	24	31	0	63	43	1.11	+1.6	1.03	2	7	0.0	0	5.4	E	---	---	---	15	12	4	3.9	---
Prescott	5014	849.6	1013.2	88	61	74.4	---	95	2	54	21	14	0	52	52	1.68	---	.51	11	17	T	0	7.9	SW	30	SW	26	12	11	8	4.8	74
Tucson	2558	924.8	1010.7	98	73	85.3	+1.1	104	2	67	29	30	0	61	50	1.56	-.78	.54	8	17	T	0	5.9	SE	42	S	8	16	9	5.6	74	
Winslow	4880	853.4	1012.2	91	63	77.0	+1.4	100	4	57	30	19	0	51	48	2.20	+8.6	.82	10	15	T	0	7.4	W	*39	E	16	13	8	10	5.0	---
Yuma	203	1003.1	1008.2	108	82	94.9	---	114	1	78	12	31	0	63	39	.00	-----	.00	0	0	0	0	9.2	SSE	34	S	23	25	6	1.8	98	
ARKANSAS																																
Fort Smith	458	997.3	1013.5	95	70	82.6	+2.1	103	15	60	25	25	0	67	67	2.50	-.78	1.46	7	6	0.0	0	7.4	NE	27	N	4	15	7	9	4.1	64
Little Rock	257	1001.4	1014.3	93	71	82.0	+2	102	17	63	28	23	0	70	73	2.50	-1.25	1.20	6	7	0.0	0	6.8	SW	54	E	1	14	12	5	4.3	78
Texarkana	361	1001.0	1014.2	94	72	83.3	+1	99	2	61	29	26	0	71	73	2.50	-1.03	1.27	6	9	0.0	0	7.7	S	*30	NNE	6	12	14	5	4.1	77
CALIFORNIA																																
Bakersfield	485	993.9	1011.6	97	66	81.6	-.4	102	8	60	27	31	0	53	39	T	-.01	T	0	1	0.0	0	4.9	WNW	*17	WNW	*1	28	2	1	1.0	---
Beaumont CO	2589	-----	-----	96	59	77.4	---	103	22	49	11	29	0	---	---	.00	---	.00	0	0	0.0	0	---	---	---	---	---	26	5	0	1.3	---
Bishop	4108	873.0	1010.8	97	53	75.0	---	101	4	46	26	30	0	---	---	.00	---	.00	0	0	0.0	0	---	---	---	---	---	27	3	1	1.2	---
Blue Canyon	5280	841.5	1012.2	78	58	67.9	---	81	2	53	26	0	0	---	---	.00	---	.00	0	1	0.0	0	---	---	---	---	---	28	2	1	1.7	---
Burbank	599	986.8	1012.9	89	61	75.1	---	98	31	55	13	16	0	56	60	.00	---	.00	0	0	0.0	0	4.4	S	*15	S	9	21	10	0	2.4	---
Eureka CO	43	1015.6	1018.0	60	52	55.9	-.1	68	24	47	24	0	0	---	---	.01	-.17	.01	1	0	0.0	0	6.4	---	21	N	25	4	11	16	7.3	51
Fresno	331	1000.3	1011.8	97	61	79.1	-.4	102	3	56	27	31	0	56	49	.00	---	.01	0	0	0.0	0	6.2	WNW	16	NW	5	29	2	0	5.1	100
Los Angeles CO	312	-----	-----	85	63	74.1	+3.0	96	31	60	13	7	0	---	---	T	-.02	T	0	0	0.0	0	4.8	---	19	N	28	25	4	2	2.4	87
Los Angeles	99	1009.1	1012.7	75	61	68.3	---	87	31	58	17	0	0	59	78	T	-.23	T	0	0	0.0	0	5.8	WSW	---	---	---	12	12	7	4.5	---
Mt. Shasta CO	3543	891.3	1014.8	85	49	67.0	+6	91	2	41	28	3	0	---	---	.00	---	.00	0	0	0.0	0	---	---	---	---	---	29	0	2	1.0	---
Oakland	3	1014.6	1015.1	72	54	62.9	+7	92	31	48	30	1	0	53	75	T	-.02	T	0	0	0.0	0	6.6	W	---	---	---	16	9	6	3.6	---
Red Bluff	341	999.3	1011.6	98	65	81.4	+1.7	106	7	55	27	29	0	45	31	.00	-.05	.00	0	0	0.0	0	7.3	SE	23	SE	8	28	2	1	1.8	98
Sacramento	17	1011.2	1012.0	91	56	73.9	+1.0	101	1	50	27	19	0	54	57	.00	.00	.00	0	0	0.0	0	9.5	SW	26	SW	8	28	3	0	5.9	96
Sandberg	4517	863.9	1012.7	86	64	74.9	---	92	22	57	11	4	0	39	30	.01	---	.01	1	1	0.0	0	13.7	NW	---	---	---	27	3	1	1.0	---
San Diego	19	1009.8	1012.8	77	64	70.2	+4	86	31	61	14	0	0	61	76	T	-.04	T	0	0	0.0	0	6.3	NW	17	SW	14	11	18	2	4.2	66
San Francisco CO	52	---	---	64	52	57.9	-.2	80	31	50	28	0	0	---	---	.01	.00	.01	1	0	0.0	0	10.0	---	30	W	16	12	11	8	5.0	57
San Francisco	1	1014.2	1014.9	69	52	60.2	+4	88	31	45	30	0	0	52	82	T	-.01	T	0	0	0.0	0	13.9	NW	34	WNW	24	11	3	7	3.1	---
Santa Catalina	1568	957.0	1011.7	81	61	71.2	---	81	23	53	19	1	0	---	---	T	---	T	0	0	0.0	0	---	---	---	---	---	25	5	1	1.7	---
Santa Maria	231	972.2	1014.6	72	51	61.6	---	82	23	45	26	0	0	53	81	T	---	T	0	0	0.0	0	5.0	W	*18	W	12	14	14	3	3.9	---
COLORADO																																
Alamosa	7534	776.8	1018.9	79	48	63.3	----	84	6	38	31	0	0	---	---	.94	-----	.42	9	17	T	T	---	---	---	---	---	5	19	7	5.5	---
Alamosa	6175	814.4	1014.7	83	57	70.1	---	92	15	51	12	4	0	46	50	3.79	---	1.24	18	17	T	2	10.1	KNW	*32	N	10	8	17	6	4.9	---
Colorado Springs	5292	839.1	1013.6	86	58	72.3	+2.6	94	16	50	31	11	0	47	48	1.41	+1.19	.55	10	12	0.0	0	6.7	S	38	NW	7	5	20	6	5.5	69
Denver	4849	860.5	1013.3	88	61	74.6	-.8	97	75	53	31	14	0	48	46	1.25	+0.8	.63	8	10	0.0	0	8.9	ESE	56	NW	7	15	11	5	4.3	68
Grand Junction	4799	858.1	1013.4	90	60	75.0	+2.3	97	15	51	31	20	0	52	52	1.12	-.70	.33	12	17	0.0	0	6.9	WNW	37	NW	2	8	19	4	4.7	77
Pueblo	4799	858.1	1013.4	90	60	75.0	+2.3	97	15	51	31	20	0	52	52	1.12	-.70	.33	12	17	0.0	0	6.9	WNW	37	NW	2	8	19	4	4.7	77
CONNECTICUT																																
Bridgeport	7	1016.6	1017.5	81	65	72.8	+9	88	5	48	24	0	0	63	75	13.29	+8.86	3.74	11	6	0.0	0	7.3	SW	*28	SW	16	10	8	13	5.6	---
Hartford	15																															



## CLIMATOLOGICAL DATA

AUGUST 1952

Table 2—Continued

State and station	Elevation (ground)	Pressure			Temperature							Precipitation										Wind				No. of days							
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Temperature				Average dew point	Average relative humidity		Precipitation			Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		No. of days		to sunset							
								Highest	Date	Lowest	Date		Max 90° F. or above	Min 32° F. or below	Total	Departure from normal	Greatest in 24 hours	No. of days	Snow, Sleet, Hail			Speed	Direction	Date	Partly cloudy		Cloudy						
Fl.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	%	In.	In.	In.	0.1 inch or more	With thunderstorms	Total	Max. depth on ground	M. p. h.	M. p. h.	M. p. h.	3	4	7	8	10	%					
INDIANA																																	
Evansville	385	1000.3	1015.8	89	64	76.5	+1.5	96	3	53	24	13	0	64	71	3.01	-0.35	1.84	6	4	0.0	0	6.8	NE	27	NW	4	10	11	10	5.4	74	
Fort Wayne	801	984.8	1015.8	82	59	70.2	-1.7	91	29	45	24	2	0	62	78	3.80	+1.69	1.23	9	6	0.0	0	5.8	NE	28	NW	16	10	12	9	5.4	67	
Indianapolis	796	987.1	1016.2	85	61	73.0	+1.6	93	29	50	24	7	0	63	75	2.46	-1.85	1.02	9	5	0.0	0	7.8	E	35	S	30	9	10	12	5.6	76	
South Bend	768	988.5	1016.2	81	59	69.9	-1.7	91	28	45	23	2	0	61	78	3.47	-1.01	1.06	10	5	T	T	8.0	S	22	WSW	3	8	16	7	5.3	--	
Terre Haute	585	995.3	1016.1	86	60	72.9	-1.9	94	3	49	23	7	0	64	76	2.96	-1.29	2.10	8	7	0.0	0	4.2	NE	27	SW	16	12	10	9	5.0	65	
IOWA																																	
Burlington	605	990.2	1015.6	83	62	72.2	-1.8	92	29	52	5	4	0	63	77	8.83	+5.28	4.65	8	10	0.0	0	8.1	SE	40	W	20	10	10	11	5.6	76	
Charles City CO	1013	979.3	-----	79	59	69.0	-1.1	89	14	49	12	0	0	---	---	5.22	+1.74	1.99	10	4	T	T	---	---	25	W	20	10	12	9	5.2	62	
Cavenport CO	579	993.9	-----	82	64	73.0	-1.1	91	2	52	23	4	0	---	---	3.52	+0.73	1.64	8	7	0.0	0	---	---	---	---	---	---	---	---	---	---	
Des Moines	800	985.8	1015.6	81	61	71.1	-1.1	90	27	51	12	1	0	63	80	5.70	+2.18	1.44	13	9	0.0	0	8.8	SE	40	SE	26	6	9	16	6.4	66	
Dubuque	641	976.6	1015.6	78	59	68.6	-1.2	86	2	45	23	0	0	61	79	5.50	---	2.36	6	4	0.0	0	---	---	25	SSW	1	7	12	12	6.0	--	
Sioux City	1097	973.2	1014.1	82	60	70.7	-1.5	93	27	49	12	2	0	63	80	3.27	+1.14	1.75	14	10	0.0	0	7.0	S	34	NW	19	7	14	10	5.6	66	
KANSAS																																	
Concordia CO	1375	963.8	-----	89	67	78.0	+2.5	105	1	57	12	14	0	---	---	2.87	-1.04	1.51	11	17	0.0	0	7.7	---	---	---	S	27	10	13	8	5.1	58
Dodge City	2594	925.8	1011.3	93	68	80.6	+1.9	105	16	56	12	19	0	61	61	2.29	-1.38	1.81	8	15	0.0	0	13.9	S	52	S	27	11	10	10	5.0	73	
Goodland	3645	888.3	1012.1	90	60	74.7	+4.4	104	16	53	9	18	0	55	62	2.25	-1.26	1.93	15	18	0.0	0	11.5	SE	25	N	7	9	14	8	4.9	--	
Topeka	926	1012.2	1013.7	89	67	78.0	---	102	14	57	24	19	0	66	71	4.21	---	1.42	12	14	0.0	0	10.1	SE	35	SE	17	9	13	9	5.7	71	
Wichita	1372	964.8	1012.3	92	70	81.1	+2.8	105	16	61	12	21	0	64	63	2.52	-1.61	1.80	13	12	0.0	0	14.4	S	56	NW	17	8	17	6	4.9	63	
KENTUCKY																																	
Lexington	979	981.0	1016.2	87	65	76.0	+1.5	94	3	50	24	9	0	63	69	2.80	-1.65	1.31	11	9	0.0	0	7.6	SSE	---	---	---	---	8	10	13	5.7	--
Louisville CO	457	-----	-----	87	67	76.9	-1.1	95	3	54	24	8	0	---	---	1.20	-2.22	1.55	6	5	0.0	0	---	---	---	---	---	---	---	---	---	---	
Louisville	485	999.0	1015.4	90	65	77.4	+1.3	98	3	51	24	18	0	63	65	2.39	-1.03	1.82	7	6	0.0	0	6.3	N	35	SE	30	11	7	13	5.6	71	
LOUISIANA																																	
Baton Rouge	64	1011.9	1014.9	92	74	82.9	+1.2	97	18	63	28	27	0	73	80	2.42	-3.09	1.72	6	11	0.0	0	5.7	SW	---	---	---	---	11	18	2	4.6	--
Lake Charles	12	1013.2	1014.7	93	75	84.0	+2.1	96	4	67	28	29	0	74	80	1.36	-4.48	1.65	6	5	0.0	0	7.7	SW	---	---	---	---	7	18	6	5.4	--
New Orleans CO	12	1013.2	-----	92	77	84.1	+1.9	97	3	70	18	24	0	---	---	2.81	-2.99	1.85	7	11	0.0	0	---	---	23	E	26	6	22	3	5.4	76	
New Orleans	12	1012.9	1014.9	91	74	82.5	---	95	3	71	28	22	0	74	84	2.00	---	1.59	9	15	0.0	0	7.6	SSW	*37	KNE	6	7	18	6	5.2	--	
Shreveport	174	1004.7	1014.1	95	73	84.1	+1.3	101	18	63	28	29	0	72	74	1.11	-1.59	1.87	5	4	0.0	0	7.0	S	34	N	6	16	8	7	4.1	80	
MAINE																																	
Caribou	624	992.2	1015.0	76	52	64.0	+2.5	92	28	38	31	2	0	53	72	2.22	-1.07	1.29	11	1	0.0	0	10.0	WSW	*25	S	*4	7	13	11	5.9	--	
Eastport CO	33	1013.2	1015.9	70	54	62.2	+1.5	81	28	49	23	0	0	---	---	4.91	+1.91	1.43	13	3	0.0	0	7.2	---	31	SW	17	10	10	11	5.9	57	
Portland	61	1012.5	1016.6	79	56	67.3	+2.7	90	27	44	23	1	0	60	80	3.51	+1.37	1.06	10	2	0.0	0	7.5	S	23	S	16	9	16	6	5.1	56	
MARYLAND																																	
Baltimore CO	14	-----	-----	84	69	76.6	+1.1	91	5	57	23	2	0	---	---	3.81	-1.56	1.23	14	---	---	---	---	---	---	---	---	---	---	---	---	---	
Baltimore	146	1012.5	1017.2	85	65	74.9	-1.1	92	5	48	24	3	0	65	76	4.71	+1.33	1.20	15	9	0.0	0	8.2	S	46	SW	21	7	8	16	6.4	49	
Frederick	294	-----	-----	84	63	73.8	-1.8	92	3	47	*25	4	0	---	---	9.02	+4.99	4.76	13	5	T	T	---	---	---	---	---	---	---	---	---	---	
MASSACHUSETTS																																	
Blair Hill Obs.	640	993.9	-----	80	61	69.2	+2.2	89	27	47	23	0	0	---	---	5.24	+1.21	2.27	14	5	0.0	0	11.7	S	40	SSW	17	7	11	13	6.1	57	
Boston	12	1012.2	1016.8	80	64	72.3	+2.4	91	29	54	23	1	0	60	69	5.86	+3.24	3.13	12	0	0.0	0	10.2	SSW	29	NW	*22	9	10	12	5.8	60	
Waukeget	43	1016.6	1017.2	76	63	69.3	+1.5	81	6	54	24	0	0	64	86	5.87	+2.47	1.43	13	8	0.0	0	11.4	SSW	29	S	17	8	6	17	6.4	53	
Pittsfield	1153	975.6	1017.6	76	55	65.6	+1.3	90	27	42	25	1	0	---	---	4.47	+1.34	1.96	8	3	0.0	0	---	---	---	---	---	---	12	8	11	5.4	--
MICHIGAN																																	
Alpena CO	587	993.9	-----	74	57	65.8	+1.7	93	28	45	23	1	0	---	---	3.58	+1.72	1.50	7	2	0.0	0	8.8	---	52	S	31	13	10	8	5.1	60	
Detroit	519	990.2	1016.4	82	61	71.5	+2.3	90	28	47	23	1	0	60	72	2.18	-1.60	1.84	9	4	0.0	0	7.2	S	29	W	4	12	10	9	4.8	70	
Escanaba CO	694	993.2	-----	72	56	63.8	-1.5	85	15	43	22	0	0	---	---	5.02	+1.83	1.83	12	5	0.0	0	11.6	---	33	W	21	12	8	11	4.9	62	
Grand Rapids	638	990.9	1016.0	81	57	69.3	+1.3	94	28	43	23	3	0	60	76	3.76	+1.15	1.48	8	6	0.0	0	5.7	SE	35	SW	9	11	13	7	4.8	71	
Lansing	859	984.8	1016.4	80	58	68.8	-1.5	90	28	41	23	1	0	59	76	3.30	+1.48	1.81	9	5	0.0	0	7.3	S	30	SW	9	15	9	7	4.2	71	
Marquette CO	677	987.8	-----	75	56	65.2	+1.4	87	14	46	3	0	0	---	---	3.18	+1.51	1.38	12	7	0.0	0	7.6	---	28	SW	1	10	10	11	5.6	64	
Nuskegon	627	993.2	1015.1	79	58	68.3	-0.1	89	30	44	23	0	0	60	79	3.65	+1.25	1.43	8	4	0.0	0	6.8	SSW	*22	WNW	4	13	12	6	4.6	--	
Sault Ste. Marie	721	993.2	1016.9	73	53	62.8	+2.0	85	27	43	12	0	0	57	84	4.09	+1.39	1.16	10	6	0.0	0	6.4	NW	27	NW	21	9	8	14	6.0	52	
Ypsilanti	722	988.2	1016.0	83	60	71.8	---	93	29	49	23	4	0	58	69	1.86	---	1.59	9	2	0.0	0	6.4	NE	*17	W	4	11	12	8	4.8	--	
MINNESOTA																																	
Duluth	1128	973.2	1014.7	73	52	62.4	---	87	14	43	22	0	0	55	81	4.55	---	1.27	14	8	T	T	10.7	---	---	---	---	---	---	---	---	---	
Intern'l Falls	1179	971.2	1014.0	75	49	61.9	-2.3	91	14	41	22	1	0	51	75	1.09	-2.04	1.61	11	4	0.0	0	---	---	---	---	---	---	---	---	---	---	
Minneapolis	830	982.1	1015.2	79	59	69.1	-1.8	91	14	51	5	2	0	58	73	4.18	+1.06	1.03	13	9	0.0	0	9.9	SSE	31	NW	10	10	14	7	4.9	65	
Rochester	1014	978.3	1015.3	79	57	67.8	-1.3	90	14	45	12	1	0	58	77	4.94	+1.52	1.84	11	6	0.0	0	6.2	S	---	---	---	---	7	12	6	6.0	--
St. Cloud	1034	976.6	1014.2	77	55	66.4	-2.4	90	14	46	5	1	0	58	78	6.95	+3.77	1.78	14	10	T	T											

See footnotes at end of table.



## CLIMATOLOGICAL DATA

Table 2-Continued

AUGUST 1952

State and station	Pressure			Temperature										Precipitation										Wind				No. of days					
	Elevation (ground)	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal				No. of days		Average dew point	Average relative humidity		Precipitation			Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		No. of days		to sunset						
							Highest	Date	Lowest	Date	Max. 90° F. or above	Min. 32° F. or below		Total	In.	In.	In.	No. of days	Snow, Sleet, Hail	Speed			Direction	Clear	Partly cloudy	Cloudy							
																												Departure from normal	Greatest in 24 hours	0.1 inch or more	With thunderstorms	Total	Max. depth on ground
Fl.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	%	In.	In.	In.	In.	In.	p. h.	p. h.	M	M	0-3	4-7	8-10	%								
NEVADA																																	
Elko	5075	845.2	1013.3	90	46	68.3	----	94	3	36	31	20	0	34	30	0.01	----	0.01	1	2	0	0	6.5	NW	*23	WNW	31	25	5	1	1.6	----	
Elko	6257	811.4	1014.2	86	49	67.5	+6.5	90	4	37	31	2	0	----	----	-0.92	----	0.10	4	8	0	0	11.2	----	47	SW	7	18	12	1	2.9	81	
Las Vegas	2162	944.5	1007.9	106	76	90.8	+6.0	111	3	66	12	31	0	41	21	.49	----	.49	1	2	0	0	7.3	SW	*28	WSW	18	25	6	0	1.5	97	
Reno	4397	853.2	1014.1	90	45	67.3	+1.6	94	3	38	27	19	0	40	41	.01	----	.01	2	0	0	0	4.9	WNW	*29	S	1	28	3	0	.7	96	
Winnemucca	4299	867.6	1013.1	91	47	68.7	-.6	96	3	35	27	21	0	33	28	.01	----	.01	1	2	0	0	7.6	----	38	SW	3	28	3	0	.9	98	
NEW HAMPSHIRE																																	
Concord	339	1006.1	1016.8	81	55	67.9	+2.4	94	27	42	24	4	0	58	75	2.34	-1.20	1.05	10	2	0	0	4.6	NW	25	NW	22	12	7	12	5.5	65	
Mt. Washington	6262	811.5	1020.3	54	43	48.2	+2	70	28	29	24	0	3	----	91	5.87	----	1.64	18	1	T	T	24.4	W	*86	NW	24	4	10	17	7.2	43	
NEW JERSEY																																	
Atlantic City CO	8	1014.6	1016.3	80	69	74.6	+2.1	88	17	55	23	0	0	----	----	7.44	+2.95	2.52	12	7	0	0	12.9	----	34	S	16	10	9	12	5.8	70	
Newark	11	1014.9	1017.1	82	66	74.1	+1.1	92	5	53	24	2	0	64	74	6.68	+1.76	1.83	14	7	0	0	5.7	SW	*22	NW	17	8	7	16	6.2	72	
Trenton CO	56	1009.8	1016.6	82	66	73.7	+7	89	5	53	24	0	0	----	----	6.92	+2.17	2.37	12	9	0	0	7.4	----	26	NW	22	8	6	17	6.5	57	
NEW MEXICO																																	
Albuquerque	5310	850.3	1011.0	92	65	75.9	+5.0	98	5	60	29	27	0	52	43	1.10	----	1.25	12	11	0	0	8.6	SE	38	SE	11	14	17	0	3.6	72	
Clayton	4969	847.3	1012.9	90	61	75.4	+2.7	97	16	57	24	16	0	54	56	3.41	+1.28	1.27	11	18	T	0	----	----	----	----	----	13	5	3	9	3.9	----
Raton	6379	803.7	1014.2	85	54	69.5	----	92	16	47	30	4	0	----	----	2.62	----	1.13	14	26	T	T	----	----	----	----	----	11	13	7	5.3	----	----
Roswell	3612	893.0	1011.1	97	66	81.6	+5.0	104	7	61	24	30	0	55	45	3.17	+1.02	1.28	8	12	T	0	9.4	----	40	NE	*3	18	10	3	3.4	----	
NEW YORK																																	
Albany	277	1009.8	1016.4	81	59	70.0	+1.0	95	27	45	24	3	0	59	72	2.00	-1.09	.77	5	2	0	0	7.2	SSE	30	W	23	11	8	12	5.4	62	
Bear Mountain	1300	----	----	75	61	68.4	----	84	5	47	23	0	0	----	----	8.13	----	3.60	13	4	0	0	----	----	----	----	----	11	6	14	5.7	----	----
Binghamton	1601	959.0	1017.5	76	58	66.1	----	86	27	43	23	0	0	59	78	4.34	----	1.79	11	4	0	0	8.5	NW	33	S	4	8	7	16	5.3	70	
Buffalo	693	989.2	1016.9	80	60	70.1	+1.7	93	27	46	23	2	0	58	70	3.12	+.04	.88	10	2	0	0	11.1	SE	36	NE	18	11	10	10	5.5	64	
New York CO	10	1005.8	----	81	68	74.1	+1.0	87	3	55	23	0	0	----	----	5.87	+1.54	2.06	14	6	0	0	10.6	----	42	SE	16	11	4	16	6.0	57	
New York	19	1014.9	1017.2	82	68	75.4	----	90	5	56	23	1	0	64	70	6.44	----	2.16	13	7	0	0	9.9	S	31	NW	17	11	5	15	6.0	----	
Oswego CO	292	1003.7	----	77	62	69.6	+1.8	88	28	53	19	0	0	----	----	1.93	-.67	1.01	6	3	0	0	7.9	----	31	N	22	11	13	7	4.8	74	
Rochester	543	997.3	1016.5	83	59	70.7	+1.5	95	28	46	23	7	0	59	71	1.43	-1.45	.65	8	2	0	0	7.9	SW	31	SW	4	12	13	6	4.9	71	
Schenectady	217	----	----	81	61	70.8	+3	92	27	50	23	2	0	----	----	1.4	-.15	1.35	4	2	0	0	----	----	----	----	----	8	14	9	5.5	----	----
Syracuse	399	995.3	1017.0	81	59	69.9	+2.6	92	28	49	23	2	0	59	71	2.05	-.81	.54	7	6	0	0	8.3	S	34	S	4	11	8	12	5.5	60	
NORTH CAROLINA																																	
Asheville CO	2203	----	----	83	62	72.7	+2.2	92	18	49	26	5	0	----	----	5.53	+1.37	1.59	16	5	T	0	5.6	----	24	SE	1	4	10	17	6.8	55	
Asheville	2093	944.8	1016.8	----	----	----	----	----	----	----	----	----	----	64	84	----	----	----	----	----	----	----	----	3.8	NW	----	----	----	----	----	----	----	----
Charlotte	753	989.2	1016.5	85	68	76.4	+5	94	13	55	27	8	0	68	81	8.93	+3.86	3.70	15	11	0	0	5.4	S	40	N	16	3	9	19	7.4	63	
Greensboro	891	986.1	1017.6	85	66	75.1	-.5	91	16	50	25	6	0	67	81	7.28	+2.04	2.63	17	8	0	0	6.9	SW	42	N	16	4	10	17	7.2	54	
Hatteras	4	1016.3	1017.0	84	75	79.5	+1.5	89	18	67	20	0	0	73	82	9.75	+4.00	2.57	12	13	0	0	10.5	S	47	SW	20	6	8	17	6.6	64	
Raleigh CO	400	----	----	87	68	77.4	+4.4	93	74	55	25	13	0	----	----	9.60	+1.19	2.96	13	7	0	0	5.9	----	29	E	31	5	12	14	6.4	49	
Raleigh	438	1001.4	1017.0	86	67	76.8	----	92	14	53	25	11	0	69	82	9.76	----	3.52	15	10	0	0	6.8	SW	----	----	----	5	10	16	6.8	----	----
Wilmington	30	1015.6	1016.8	87	72	79.6	+2.0	94	13	58	25	13	0	72	82	8.82	+2.46	1.83	15	14	0	0	9.5	S	36	NE	27	4	17	10	6.4	49	
Winston-Salem	967	982.4	1017.4	85	66	75.3	-.7	94	18	55	25	11	0	66	78	7.77	+3.09	1.98	19	10	0	0	8.1	NE	----	----	----	5	9	17	7.1	----	----
NORTH DAKOTA																																	
Bismarck	1653	953.3	1012.8	83	54	68.5	+1.8	101	14	41	11	6	0	52	64	-.61	-1.21	.33	9	11	0	0	10.5	SSE	56	W	31	8	13	10	5.5	68	
Devils Lake CO	1471	960.0	----	79	54	66.7	+1.9	99	14	43	11	5	0	----	----	1.66	-.82	.70	10	6	0	0	7.5	----	26	W	31	13	11	7	4.9	68	
Fargo	895	979.3	1013.2	81	55	67.9	+1.8	97	14	44	11	3	0	55	69	2.69	-.20	1.73	6	7	1	0	11.8	SSE	45	SW	30	13	12	6	4.6	76	
Williston CO	1877	945.8	1012.5	81	55	68.1	+2.0	101	25	42	11	7	0	48	57	2.45	+.98	1.28	6	6	T	T	6.3	----	30	W	31	12	9	10	5.1	77	
OHIO																																	
Akron	1210	979.3	1017.2	82	59	70.3	-.7	90	27	46	24	2	0	59	72	1.81	-1.59	.52	9	5	0	0	6.6	SE	----	----	----	8	11	12	5.6	----	----
Cincinnati Obs.	761	----	----	86	64	74.8	+1.2	97	3	50	23	4	0	----	----	2.81	-.60	1.07	8	4	0	0	4.6	----	20	N	14	----	----	----	60	----	----
Cincinnati	871	984.4	1016.0	86	62	74.1	+6	95	3	50	25	7	0	60	65	1.68	-1.66	.68	9	4	0	0	8.0	NE	----	----	----	8	10	13	5.7	----	----
Cleveland CO	663	----	----	80	65	72.1	+2.1	89	27	50	24	0	0	----	----	2.67	-.10	1.26	9	0	0	0	----	----	----	----	----	----	----	----	----	----	----
Cleveland	787	989.2	1016.4	84	61	72.0	+1.8	93	27	44	24	5	0	60	70	1.98	-.79	.56	10	3	0	0	7.5	S	47	W	15	8	14	9	5.4	70	
Columbus CO	724	----	----	84	64	73.9	+9	92	3	50	23	3	0	----	----	2.50	-.76	1.30	9	0	0	0	----	----	----	----	----	----	----	----	----	----	----
Columbus	815	986.8	1017.7	85	61	75.2	+1.8	93	3	46	23	3	0	60	69	1.87	-1.70	.91	3	0	0	0	5.8	SE	26	NW	16	9	10	12	5.7	68	
Dayton	1002	980.7	1016.6	84	62	72.9	0	93	3	49	23	3	0	59	68	2.58	-.69	1.32	9	5	0	0	5.4	SE	38	NW	16	9	13	6	6.0	64	
Sandusky	603	994.2	----	81	65	72.7	+9	87	15	53	25	0	0	----	----	1.12	-2.04	.63	9	1	0	0	6.1	----	21	SW	15	12	11	8	4.7	74	
Toledo	621	993.2	1016.1	83	61	71.8	+1.6	90	29	47	23	2	0	60	71	1.51	-1.35	.85	7	2	0	0	7.3	ENE	27	SW	4	11	9	11	5.1	64	
Youngstown	1178	974.9	1017.0	80	57	68.9	-.2	89	3	43	24	0	0	59	74	3.72	+.58	.37	10	3	0	0	6.7	NE	*30	NW	16	10	10	11	5.3	----	----
OKLAHOMA																																	
Oklahoma City	1254	966.1	1011.7	97	73	84.9	+5.2	106	16	67	29	28	0	66	61	1.90	-.99	1.27	7	9</													

See footnotes at end of table.



## CLIMATOLOGICAL DATA

Table 2-Continued

AUGUST 1952

State and station	Elevation (ground)	Pressure			Temperature										Precipitation										Wind				No. of days (sunrise to sunset)			
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal			No. of days		Average dew point	Average relative humidity	Total	Departure from normal		No. of days		Snow, Sleet, Hail		Average hourly speed	Fastest mile		Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine			
							Highest	Date	Lowest	Date	Max. 90° F. or above				Min. 32° F. or below	Total	In.	In.	Greatest in 24 hours	No. of days		Snow, Sleet, Hail	Prevailing direction							Speed	Direction	
	ft.	mb.	mb.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	%	In.	In.	In.	.01 inch or more	With thunderstorms	Total	Max. depth on ground	M. p. h.	M. p. h.		0-3	4-7	8-10	0-10	%				
SOUTH CAROLINA (Contd.)																																
Charleston	41	1014.2	1016.0	89	72	80.5	+1.2	97	17	60	26	18	0	72	80	7.36	+0.21	1.86	14	17	0.0	0	7.5	SSW	---	---	---	1	11	19	7.6	---
Columbia CO	332	1003.1	-----	88	70	79.1	-.5	96	12	59	26	13	0	---	---	8.29	+2.82	2.31	17	12	0.0	0	6.7	---	40	NE	31	8	12	11	5.9	63
Columbia	217	1007.5	1015.6	90	70	80.0	---	97	17	54	26	19	0	70	79	11.95	---	2.05	15	14	0.0	0	6.2	SSW	---	---	---	6	13	12	6.1	---
Florence	146	1010.8	1016.3	90	69	79.5	---	99	13	55	26	21	0	---	---	10.89	---	3.61	20	15	0.0	0	---	---	---	---	---	4	11	16	7.2	---
Greenville	1006	979.7	1016.2	86	68	77.0	+1.2	95	18	58	26	12	0	67	78	7.27	+1.77	2.86	15	10	0.0	0	7.4	NNE	38	W	4	3	11	17	7.2	59
Spartanburg	801	986.5	1015.9	86	67	76.5	-1.4	94	18	57	26	13	0	---	---	7.23	+1.79	1.45	15	10	0.0	0	---	---	---	---	---	3	11	17	7.0	---
SOUTH DAKOTA																																
Huron	1282	966.8	1012.9	84	58	71.1	+1.7	97	1	47	9	5	0	57	68	1.34	-1.12	.61	9	8	0.0	0	10.2	S	33	SE	25	11	12	8	5.0	74
Rapid City	3215	900.8	1012.8	87	58	72.4	+2.9	98	1	47	31	11	0	53	54	.70	-1.00	.20	9	13	0.0	0	10.2	NNW	42	NW	30	12	14	5	4.5	65
Sioux Falls	1420	964.8	1014.5	83	58	70.0	-1.1	95	1	48	12	4	0	59	72	3.39	+2.6	1.33	14	11	T	0	9.1	S	*31	N	27	10	13	8	5.4	---
TENNESSEE																																
Bristol	1519	963.8	1017.0	85	64	74.7	-.4	94	16	52	26	7	0	65	76	3.06	-1.23	.81	10	8	0.0	0	4.0	NE	*30	E	1	4	12	15	6.8	---
Chattanooga	670	988.5	1015.5	90	68	78.7	+3.0	98	17	54	27	17	0	69	78	4.41	+3.8	1.81	14	8	0.0	0	4.1	SSW	25	NNW	21	4	12	15	6.9	48
Knoxville	949	981.7	1016.4	87	68	77.2	+1.8	93	18	56	27	11	0	67	75	4.57	+6.5	1.91	13	8	0.0	0	6.2	W	38	NE	16	3	12	16	7.0	37
Memphis CO	271	-----	-----	90	74	81.9	+2.5	97	17	63	24	18	0	---	---	1.82	-1.54	1.26	6	5	0.0	0	---	---	---	---	---	---	---	---	---	---
Memphis	263	1000.7	1014.9	92	71	81.7	+3.3	100	17	62	28	22	0	69	69	2.97	-.43	1.77	5	4	0.0	0	7.7	SW	26	W	6	10	12	9	5.3	79
Nashville	577	995.6	1015.3	92	70	80.7	+2.9	100	4	60	28	20	0	66	67	4.12	+4.1	1.53	11	9	0.0	0	4.5	S	25	NW	12	10	9	12	5.7	55
TEXAS																																
Abilene	1752	951.9	1010.8	103	77	90.1	+9.8	107	6	72	1	31	0	58	39	.02	-2.22	.01	2	4	0.0	0	11.8	SSE	45	SE	6	20	7	4	3.2	---
Amarillo	3590	889.3	1011.0	96	68	81.7	+7.1	103	16	63	29	28	0	57	52	.88	-2.20	.37	10	12	0.0	0	9.4	S	36	NW	28	18	7	6	3.6	77
Austin	515	992.6	1013.6	100	74	87.1	+3.3	102	25	68	30	31	0	68	63	.00	-2.05	.00	0	0	0.0	0	9.3	S	31	SE	25	31	10	10	2.8	96
Big Spring	2533	925.2	1010.8	101	76	88.1	+5.6	105	8	70	29	31	0	56	40	.53	-1.48	.40	5	6	0.0	0	9.9	S	---	---	---	16	13	2	3.5	---
Brownsville	16	1010.8	1013.3	94	76	85.1	+1.2	98	31	70	29	31	0	73	77	.50	-2.36	.49	2	1	0.0	0	11.7	SE	27	SE	8	16	13	2	3.6	76
Corpus Christi	40	1013.2	1014.2	95	76	85.2	+3.6	98	18	70	29	30	0	75	80	.10	-2.17	.10	1	0	0.0	0	12.3	SE	27	SE	15	20	7	4	3.4	91
Dallas	487	994.6	1012.8	102	79	90.3	+6.8	107	16	66	29	31	0	66	53	.27	-2.50	.15	2	0	0.0	0	13.4	S	36	NW	10	20	7	4	2.0	87
Del Rio	957	978.0	1011.5	102	77	89.3	+5.1	105	7	71	1	31	0	62	48	.00	-1.72	.00	0	0	0.0	0	7.4	ESE	24	SE	11	25	6	0	1.5	96
El Paso	3920	881.1	1010.0	96	71	83.6	+5.6	103	8	65	12	29	0	55	43	1.06	-.64	.74	9	14	0.0	0	8.1	N	35	W	10	19	9	3	3.4	81
Fort Worth	698	988.5	1012.3	104	79	91.1	+8.4	108	6	73	29	31	0	63	49	.44	-2.18	.20	4	6	0.0	0	12.8	S	*54	W	10	21	8	2	2.6	---
Galveston CO	7	1014.2	1015.0	88	80	84.0	+1.0	91	25	76	29	4	0	---	---	.41	-3.87	.29	4	0	0.0	0	---	---	25	E	27	---	---	---	---	77
Galveston	7	1014.2	1015.0	88	79	84.1	+1.1	90	5	75	26	10	0	76	80	.66	-3.62	.41	3	5	0.0	0	11.1	SSW	---	---	---	10	14	7	5.1	---
Houston CO	41	1009.5	-----	94	77	85.6	+2.4	98	16	68	29	30	0	---	---	.74	-3.42	.56	5	4	0.0	0	---	---	28	E	25	6	17	8	5.6	82
Houston	41	1011.9	1014.2	95	75	84.6	+2.5	98	15	68	29	31	0	73	77	1.09	-1.52	.83	4	4	0.0	0	10.1	SSW	---	---	---	7	21	3	5.2	---
Laredo	500	996.6	1011.7	102	77	89.7	+2.8	105	8	73	30	31	0	67	57	.00	-1.62	.00	0	0	0.0	0	15.7	SE	*28	SE	5	21	10	0	2.5	---
Lubbock	3238	902.8	1010.9	95	68	81.6	+3.5	100	7	62	24	29	0	60	55	1.88	-.10	1.02	6	7	T	0	10.3	S	*31	SE	16	16	11	4	3.7	---
Palestine CO	491	995.9	-----	97	74	85.5	+3.7	100	23	62	29	31	0	---	---	.26	-1.91	.21	2	1	0.0	0	7.2	---	25	NW	7	17	14	0	3.1	91
Port Arthur CO	5	1013.5	-----	92	78	84.8	+1.6	94	19	70	29	28	0	---	---	.70	-5.32	.64	3	7	0.0	0	---	---	26	SW	21	8	20	3	4.7	61
Port Arthur	5	1013.9	1014.8	93	72	82.8	---	95	25	62	29	29	0	75	83	1.91	---	1.65	3	5	0.0	0	7.5	SSW	---	---	---	8	17	6	5.1	---
San Antonio	1903	946.5	1011.4	100	76	88.2	+4.8	105	6	71	1	31	0	60	45	.05	-2.24	.05	1	3	0.0	0	10.0	SSW	*32	E	25	20	9	2	2.8	---
San Antonio	782	988.8	1013.3	99	74	86.2	+2.7	101	16	66	30	3	0	64	58	.00	-2.42	.00	0	0	0.0	0	8.2	SE	33	SE	16	20	10	1	2.7	93
Victoria	109	1009.1	1013.8	96	75	85.3	+5	99	18	67	29	30	0	72	76	1.46	-1.40	1.35	2	3	0.0	0	7.6	---	31	ESE	21	15	15	1	3.9	---
Waco	504	994.6	1012.6	101	77	88.8	+3.4	105	6	68	30	31	0	69	58	T	-2.33	T	0	2	0.0	0	9.9	S	---	---	---	16	15	0	3.2	---
Wichita Falls	1027	975.3	1010.5	103	79	91.1	+5.2	108	8	72	24	31	0	63	45	.24	-1.93	.20	3	4	0.0	0	10.5	S	*33	ENE	12	19	8	4	3.4	---
UTAH																																
Milford	5028	848.3	1013.3	92	58	74.8	+3.9	99	*4	45	31	24	0	---	---	1.22	+57	.54	5	16	T	T	---	---	---	---	---	17	12	2	3.5	---
Salt Lake City	4227	866.6	1010.8	90	63	76.3	+3.5	95	*5	49	31	20	0	49	42	.19	-.71	.06	6	16	T	0	10.9	SE	38	W	23	14	14	3	3.7	79
VERMONT																																
Burlington	331	1001.4	1015.8	80	58	69.0	+1.1	94	28	49	19	3	0	58	70	3.30	-.07	1.19	11	5	0.0	0	8.7	S	27	S	4	9	10	12	5.6	55
VIRGINIA																																
Cape Henry CO	16	1015.9	1016.6	84	72	78.1	+1.2	93	5	61	23	5	0	---	---	7.56	+2.70	2.95	13	8	0.0	0	9.9	---	34	NW	13	11	10	10	5.1	68
Lynchburg	947	984.1	1017.4	83	64	73.4	-.9	89	17	51	24	0	0	66	81	11.36	+7.58	2.56	16	15	0.0	0	6.7	N	46	NE	31	5	11	15	6.9	48
Norfolk CO	11	1013.9	1017.2	86	72	79.2	+1.8	92	5	63	24	12	0	---	---	4.73	-.49	1.87	15	10	0.0	0	8.6	---	34	W	16	---	---	---	67	---
Norfolk	25	1015.9	1017.2	86	70	77.9	+2.1	93	5	57	25	7	0	69	78	5.69	+4.25	2.12	12	9	0.0	0	8.2	S	---	---	---	7	11	13	6.2	---
Richmond CO	162	-----	-----	86	68	76.8	+3.3	91	4	54	24	5	0	---	---	8.08	+3.66	2.20	13	---	0.0	0	---	---	---	---	---					



## CLIMATOLOGICAL DATA

Table 2-Continued

AUGUST 1952

State and station	Elevation (ground)	Pressure		Temperature										Precipitation										Wind				No. of days		Sky cover, tenths (sunrise to sunset)	Possible sunshine				
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal			Date	No. of days	No. 90° F. or above	Min. 32° F. or below	Average dew point	Average relative humidity	Departure from normal	Greatest in 24 hours	No. of days	Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		Date	Clear	Partly cloudy	Cloudy							
							Highest	Date	Lowest										Total	Max. depth on ground			Speed	Direction											
							Ft.	Mb.	Mb.										°F.	°F.			°F.	°F.					°F.			°F.	°F.	%	In.
PACIFIC AREA																																			
Canton Island	9	1009.1	1009.6	91	78	84.2	----	96	2	74	5	20	0	73	73	3.48	-----	0.99	14	0	0.0	0	-----	----	----	----	4	18	9	5.6	----	----			
Hilo	28	1014.9	1016.3	81	67	74.3	----	87	16	64	22	0	0	68	83	6.88	-----	.97	26	0	.0	0	5.0	SW	18	NNE	24	0	10	21	8.2	41	----	----	
Honolulu CO	12	-----	-----	83	74	78.2	-0.2	85	3	72	9	0	0	----	----	1.18	-1.10	.06	6	0	.0	0	-----	----	----	----	0	7	24	5.2	79	----	----		
Honolulu	7	1015.9	1016.4	85	74	79.1	----	88	3	72	2	0	0	66	68	.09	-----	.05	6	0	.0	0	12.9	ENE	33	E	24	15	7	5.2	79	----	----		
Koror	117	1004.4	1008.1	87	75	80.6	----	89	20	71	30	0	0	----	----	24.66	-----	5.31	27	5	.0	0	-----	----	----	----	0	7	24	8.6	----	----			
Lihue	115	1011.9	1016.9	84	72	78.0	----	85	3	68	10	0	0	69	75	.82	-----	.19	17	0	.0	0	11.8	NE	27	NE	25	2	19	10	6.5	58	----	----	
Moen (Truk Group)	3	1010.2	1010.4	86	74	79.8	----	91	8	70	2	1	0	----	----	14.51	-----	2.88	27	1	.0	0	-----	----	----	----	0	7	24	8.4	----	----			
Ponape	112	1006.4	1011.5	88	72	79.7	----	92	20	70	12	7	0	----	----	13.61	-----	2.38	27	2	.0	0	-----	----	----	----	0	6	25	8.4	----	----			
Wake Island	11	1013.2	1013.5	88	78	82.9	----	90	2	73	4	5	0	75	76	4.47	-----	1.50	17	2	.0	0	11.9	E	----	----	6	17	8	5.6	----	----			
Yap	51	1007.5	1009.5	88	75	81.4	----	91	18	73	3	10	0	----	----	15.81	-----	2.41	27	2	.0	0	-----	----	----	----	0	0	31	9.6	----	----			
WEST INDIES																																			
San Juan CO	47	-----	-----	87	76	81.0	+5	90	28	72	31	2	0	----	----	7.74	+1.76	2.24	21	17	.0	0	-----	----	----	----	----	----	----	----	----	----	----	----	----
San Juan, P.R.	9	1012.9	1015.0	88	75	81.7	----	93	17	72	31	3	0	74	80	6.97	-----	1.71	21	17	.0	0	-----	----	30	E	12	8	15	8	5.2	74	----	----	
ALASKA																																			
Anchorage	134	1009.8	1015.1	64	46	55.1	-.5	71	4	33	27	2	0	48	79	2.95	+3.39	.71	16	1	.0	0	4.1	N	29	SW	31	2	9	20	8.0	45	----	----	
Annette Island	110	1013.2	1017.1	65	52	58.1	-.2	77	5	46	25	9	0	53	83	6.27	+1.08	2.17	11	1	.0	0	11.3	SSE	*29	SE	16	8	5	18	6.9	----	----		
Barrow	22	1014.6	1015.3	44	34	38.6	+3	64	8	28	24	0	17	37	93	1.14	+3.1	.39	13	0	T	T	10.6	ESE	34	E	23	2	3	26	8.8	----	----		
Bethel	21	1011.2	1012.8	59	46	52.3	-.4	68	4	38	25	0	0	49	90	3.08	-.94	.81	21	1	.0	0	9.7	S	*36	S	10	1	3	27	8.8	----	----		
Cordova	40	1013.5	1015.3	61	44	52.5	+2	75	12	33	28	4	0	48	85	5.50	-4.08	1.71	19	0	.0	0	2.4	ENE	*28	WSW	12	2	7	22	8.3	----	----		
Fairbanks	436	997.0	1014.2	64	44	53.9	-.1	79	5	31	23	8	2	45	74	1.14	-1.59	.44	12	0	.0	0	4.4	WSW	*19	W	12	1	7	23	8.1	----	----		
Galeana	120	1008.1	1012.8	61	44	52.5	-.7	76	5	31	27	3	1	46	77	2.64	-.15	.62	16	1	.0	0	6.6	ESE	*35	SSW	10	3	4	14	8.1	----	----		
Gambell	25	1010.8	1012.0	48	41	44.5	-1.2	57	17	37	24	0	0	43	93	1.79	-.33	.51	16	0	.0	0	15.1	NE	*34	N	*19	1	4	26	9.1	----	----		
Juneau	15	1015.6	1016.5	61	47	54.1	+1.3	75	13	37	29	4	0	49	83	5.90	+1.18	1.17	17	0	.0	0	8.2	N	*27	SE	16	3	1	27	8.8	20	----	----	
Kotzebue	10	1011.5	1012.2	56	46	50.7	+5	73	5	35	25	1	0	47	88	2.62	+8.9	.82	16	0	.0	0	13.9	E	*45	ESE	2	3	25	8.2	----	----			
McGrath	334	1001.4	1014.0	62	43	52.2	-1.2	75	5	29	25	3	4	46	80	3.14	-.38	.72	19	0	.0	0	5.9	SSW	*38	SSW	10	3	6	22	8.0	----	----		
Nome	13	1011.5	1012.2	56	45	50.3	+8	66	5	32	24	0	1	46	85	4.17	+4.1	1.92	18	0	.0	0	10.4	ENE	41	E	2	2	5	24	8.5	18	----	----	
Northway	1713	951.9	1014.9	63	43	52.9	-.4	78	4	29	28	9	1	43	73	1.54	-.45	.42	12	0	.0	0	7.1	NW	*23	NW	12	1	9	21	8.2	----	----		
St. Paul Island	22	1010.5	1011.5	48	44	46.0	-1.4	51	18	40	21	0	0	45	96	5.44	+2.28	1.29	24	0	.0	0	----	----	----	----	0	1	30	9.8	----	----			
Uniat	337	1003.7	1016.6	56	38	46.6	.0	75	6	24	27	4	13	41	81	.66	-1.07	.23	9	1	T	T	7.3	NE	----	----	3	7	21	7.7	----	----			
Yakutat	28	1014.9	1016.2	61	47	54.1	+1.1	73	13	34	28	1	0	51	89	13.37	+2.20	4.60	19	0	.0	0	8.7	ESE	*36	SE	16	1	5	25	8.9	----	----		

Data from airport unless otherwise specified. CO indicates data from city office.

\* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

† Other dates also.

‡ Peak gust.

# Max. 70° F. or above for Alaskan stations.



## HEATING DEGREE DAYS

(Base 65°F.)

AUGUST 1952

Table 3

State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month
	This month	Period July through this month	July through this month			This month	Period July through this month	July through this month			This month	Period July through this month	July through this month			This month	Period July through this month	July through this month	
ALABAMA					IOWA					NEW JERSEY (Cont'd.)					TEXAS (Cont'd.)				
Birmingham	0	0	0		Burlington	5	5	5		Trenton (CO)	0	0	6		Brownsville	0	0	0	
Mobile (CO)	0	0	0		Charles City (CO)	16	17	32		NEW MEXICO					Corpus Christi	0	0	0	
Mobile	0	0	0		Davenport (CO)	4	4	7		Albuquerque	0	0	0		Dallas	0	0	0	
Montgomery (CO)	0	0	0		Des Moines	4	4	10		Clayton	0	6	4		Del Rio	0	0	0	
Montgomery	0	0	0		Dubuque	22	22	16		Raton	0	13			El Paso	0	0	0	
ARIZONA					Keokuk (CO)	0	0			Roswell	0	3	0		Ft. Worth	0	0	0	
Flagstaff	42	107	110		Sioux City	0	2	16		NEW YORK					Galveston (CO)	0	0	0	
Phoenix (CO)	0	0	0		KANSAS					Albany	13	13	21		Galveston	0	0		
Phoenix	0	0	0		Concordia (CO)	0	0	4		Bear Mountain (CO)	20	20			Houston (CO)	0	0		
Prescott	0	0	0		Dodge City	0	1	4		Binghamton	34	41	53		Houston	0	0	0	
Tucson	0	0	0		Goodland	9	23	7		Buffalo	15	15	39		Laredo	0	0		
Winslow	0	0	0		Topeka (CO)	0	0	2		New York (CO)	1	1	5		Lubbock	0	4		
Yuma	0	0	0		Topeka	0	0			La Guardia Field	0	0			Palestine (CO)	0	0	0	
ARKANSAS					Wichita	0	0	1		Oswego (CO)	3	6	50		Port Arthur (CO)	0	0	0	
Ft. Smith	0	0	0		KENTUCKY					Rochester	13	14	36		Port Arthur	0	0		
Little Rock	0	0	0		Lexington	1	1	4		Schenectady	8	8			San Angelo	0	0		
Texarkana	0	0	0		Louisville (CO)	0	0	1		Syracuse	13	15	44		San Antonio	0	0	0	
CALIFORNIA					Louisville	0	0			NORTH CAROLINA					Victoria	0	0		
Bakersfield	0	0	0		Pikeville (CO)	0	0			Asheville (CO)	1	1	6		Waco	0	0		
Beaumont (CO)	0	0	0		LOUISIANA					Asheville	11	11			Wichita Falls	0	0		
Bishop	0	0	2		Baton Rouge	0	0	0		Charlotte	0	0	1		UTAH				
Blue Canyon	5	8			Lake Charles	0	0			Greensboro	0	0	2		Millford	0	0		
Burbank	0	0			New Orleans (CO)	0	0	0		Hatteras	0	0	0		Salt Lake City (CO)	0	0	7	
Eureka (CO)	276	572	543		New Orleans	0	0			Raleigh (CO)	0	0	1		Salt Lake City	0	0	0	
Fresno	0	0	0		Int. Airport, Moisant	0	0			Raleigh	0	0			VERMONT				
Los Angeles (CO)	0	0	1		Shreveport	0	0	0		Wilmington	0	0	0		Berlington	15	19	64	
Los Angeles	0	30			MAINE					Winston-Salem	0	0							
Mt. Shasta (CO)	17	24			Caribou	89	109			NORTH DAKOTA					VIRGINIA				
Oakland	107	171	150		Eastport (CO)	94	150	297		Bismarck	35	49	65		Cape Henry (CO)	0	0	0	
Red Bluff	0	0	0		Greenville (CO)	93	111	182		Devils Lake (CO)	52	78	115		Lynchburg	4	4	3	
Sacramento (CO)	0	0	2		Portland	24	30	76		Fargo	35	51	66		Norfolk (CO)	0	0	0	
Sacramento	0	0			MARYLAND					Grand Forks	54	77	92		Norfolk	0	0		
Sandberg (CO)	0	0			Baltimore (CO)	0	0	1		Pembina	45	72			Richmond (CO)	0	0	1	
San Diego	0	1	7		Baltimore	1	1			Williston (CO)	53	80	88		Richmond	1	1		
San Francisco (CO)	214	409	383		Frederick	7	7			OHIO					Roanoke	0	0	4	
San Francisco	148	233	260		MASSACHUSETTS					Akron	15	22	27		WASHINGTON				
San Jose	8	11			Boston	2	2	22		Cincinnati (CO)	0	0	5		Ellensburg	45	78		
Santa Catalina	22	30			Milton	17	17			Cincinnati	1	1			Kelso	68	139		
Santa Maria	101	198			Nantucket	9	10	31		Cleveland (CO)	7	8	21		North Head (CO)	218	485	435	
COLORADO					Pittsfield	48	56			Cleveland	6	9			Olympia	111	188		
Alamosa	54	85			MICHIGAN					Columbus	5	5	8		Port Angeles	259	537		
Colorado Springs	7	30			Alpena (CO)	45	75	129		Dayton	4	4	9		Seattle (CO)	30	69	92	
Denver	0	23	16		Detroit	11	13	24		Sandusky (CO)	0	0	11		Seattle	97	176		
Grand Junction	0	0	2		Escanaba (CO)	76	121	138		Toledo	11	11	20		Spokane	39	67	59	
Pueblo	0	10	6		Grand Rapids (CO)	13	21	28		Youngstown	24	33			Stampede Pass (CO)	285	531		
CONNECTICUT					Grand Rapids	16	26			OKLAHOMA					Tacoma (CO)	66	132	146	
Bridgeport	2	2			Lansing	22	30	53		Oklahoma City (CO)	0	0	0		Tatoosh Island (CO)	296	630	596	
Hartford	7	7	18		Marquette (CO)	91	139	185		Oklahoma City	0	0			Wallis Wells (CO)	2	4	14	
New Haven	5	5	14		Muskegon	21	38			Tulsa	0	0			Yakima	44	64	26	
DELAWARE					Sault Ste. Marie	98	117	201		OREGON					WEST VIRGINIA				
Wilmington	4	4			Ypsilanti	7	7			Baker (CO)	55	104	126		Charleston	1	1		
DIST. OF COLUMBIA					MINNESOTA					Baker	70	138			Elkins	20	24	39	
Washington (CO)	0	0	2		Duluth (CO)	113	157	165		Burns (CO)	26	56			Huntington (CO)	0	0		
Washington	0	0			Duluth	108	149			Eugene	37	55			Parkersburg (CO)	3	3	5	
FLORIDA					International Falls	123	186			Meacham	113	209			Petersburg	9	9		
Apalachicola (CO)	0	0	0		Minneapolis	12	13	31		Medford	3	4	18		WISCONSIN				
Daytona Beach	0	0			Rochester	29	42			Pendleton	10	16			Green Bay	36	54	55	
Fort Myers	0	0	0		St. Cloud	38	54	71		Portland (CO)	8	20			La Crosse (CO)	13	13	29	
Jacksonville (CO)	0	0	0		St. Paul	11	11	32		Portland	13	15	55		La Crosse	8	9		
Jacksonville	0	0	0		MISSISSIPPI					Roseburg (CO)	13	15	49		Madison (CO)	13	13	28	
Key West (CO)	0	0	0		Jackson	0	0	0		Salem	42	66			Madison	20	21		
Key West	0	0	0		Meridian	0	0	0		Sexton Summit (CO)	79	139			Milwaukee (CO)	13	18	34	
Melbourne	0	0	0		Vicksburg (CO)	0	0	0		Troutdale	29	60			Milwaukee	14	18		
Miami	0	0	0		MISSOURI					PENNSYLVANIA					WYOMING				
Int. Airport, Hialeah	0	0	0		Columbia	0	0	4		Allentown	7	7			Casper	22	64		
Miami Beach	0	0	0		Kansas City	0	0	0		Eric (CO)	9	9	24		Cheyenne	30	88	84	
Orlando	0	0	0		St. Joseph	0	0	4		Harrisburg	4	4	7		Lander	21	57	66	
Pensacola (CO)	0	0	0		St. Louis (CO)	0	0	1		Park Place (CO)	24	28			Rock Springs (CO)	18	40		
Tallahassee	0	0	0		St. Louis	0	0			Philadelphia (CO)	0	0	2		Rock Springs	32	73		
Tampa	0	0	0		Springfield	0	0	3		Philadelphia	0	0			Sheridan	31	71		
West Palm Beach	0	0			GEORGIA					Pittsburgh (CO)	3	3	8		ALASKA				
GEORGIA					Albany	0	0	0		Pittsburgh	10	10	16		Anchorage	299	536		
Albany	0	0	0		Athens	0	0			Reading (CO)	0	0	6		Annette Island	212	457		
Athens	0	0	0		Atlanta (CO)	0	0	0		Seranton (CO)	14	14	27		Barrow	811	1555	1607	
Atlanta (CO)	0	0	0		Atlanta	0	0			Williamsport	10	10	22		Bethel	388	716	730	
Atlanta	0	0	0		Augusta	0	0	0		RHODE ISLAND					Cordova	379	813		
Columbus	0	0	0		Columbus	0	0	0		Block Island	2	2	19		Fairbanks	336	494	509	
Macon	0	0	0		Helena	51	109	109		Providence (CO)	3	3	20		Galena	380	547		
Rome	0	0	0		Kalispell	101	211	168		Providence	8	8			Gambell	629	1315		
Savannah	0	0	0		Miles City	30	46			SOUTH CAROLINA									



## SEVERE STORMS

Table 4

AUGUST 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Jackson Township, Shelby County, Iowa	1	3:30-6 a.m.	*2	6				See remarks	Hail	Hailstones mostly $\frac{1}{2}$ to 1 inch in diameter, with a few to $1\frac{1}{2}$ inches. Light damage in Lincoln and Center Townships, but heavy damage to corn, soybeans, apples, and peaches in Jackson Township.
Junction City (4 miles north of), Geary County, Kans.	1	3 p.m.					\$7,500		Electrical	Two-story farm home and second-story contents destroyed by fire, following lightning strike.
Boyle County, Ky.	1	4-4:30 p.m.					10,000	\$800,000	Hail	Tobacco, corn, and gardens in an area of about 11 square miles destroyed or damaged. Buildings and automobiles also damaged.
Fayette and Jessamine Counties, Ky.	1	P.m.						300,000	do	Tobacco, corn, and garden crops damaged extensively. Some Burley tobacco destroyed completely. About 400 acres of tobacco affected.
Marion County, Kans.	1	4:30 p.m.	*10	12	0	0	14,000	24,000	Wind, hail, and possible tornado	Beginning about 2 miles east-northeast of Marion and moving eastward, severe wind accompanied by hail in 3-mile strip destroyed or damaged barns, sheds, roofs and windows, and beat field crops into ground. No funnel sighted, but some wind damage indicated tornado activity. Crop damage by wind, \$2,000; by hail, \$22,000. Property damage by wind, \$11,000; by hail, \$3,000.
Appleton and vicinity, Minn.	1	5:30-5:45 p.m.	*2	35				25,000	Hail	Light to heavy hail that accompanied severe thunderstorm caused considerable damage to growing crops. Some fields of corn, soybeans and small grains damaged from 75 to 100 percent. Storm moved south-eastward.
Franklin County (northeastern portion), Kans.	1	Evening					750		Wind	Locally severe wind tore down stack of baled straw, destroyed 1 barn, moved another from foundation; damage to electric and telephone wires.
Madison, Fla.	1	11 p.m.					1,500	2,000	Electrical	Lightning set fire to tobacco barn filled with bright tobacco. Barn and contents destroyed.
Hoke County, N.C.	1							3,000	Hail	
Garden City (2 miles south of), Finney County, Kans.	2	2:30 a.m.					6,000		Electrical	Lightning started fire which destroyed home.
Preston (near), Franklin County, Idaho	2	5 p.m.						See remarks	Hail	Hail up to $\frac{5}{8}$ inch in diameter destroyed grain on about 500 acres, 6 miles east of Preston; loss estimated at 90 percent.
Nohly, Mont.	2	5:15 p.m.	*3	6			60	11,500	do	Hailstones about $\frac{3}{4}$ inch in diameter. Most damage to wheat.
Scranton (near), Osage County, Kans.	2	Evening				1			Electrical	Man seriously injured by lightning.
Quenemo (near), Osage County, Kans.	2	Evening					2,000		do	10 head of cattle killed by one bolt of lightning.
Rogue Valley, Ore.	3	Afternoon					Slight	50,000	Hail	A very spotted thunderstorm accompanied by heavy hail. Areas of damage mostly small, but fairly numerous with usually only 1 or 2 pear orchards being seriously hurt at any one particular point. \$50,000 damage estimated almost exclusively to pears.
Falcon, Colo.	3	3:30 p.m.	*2				220		Wind, and hail	Buildings damaged.
Oxford, Lafayette County, Miss.	3	3:45 p.m.	200	3/10	0	0	15,000	0	Tornado	Funnel reported. Some outbuildings demolished, many roofs damaged; large trees uprooted.

See footnotes at end of table.



# SEVERE STORMS

Table 4--Continued

AUGUST 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Englewood, Colo.	3	4:15 p.m.					\$25,000	\$3,000	Hail, and wind	Buildings and gardens damaged.
Osage City, Osage Coun- ty, Kans.	3	Evening					600		Electri- cal	Three head of cattle killed by lightning.
Greenville, S.C.	4	Afternoon					10,000		Wind and rain	Wind and heavy rains knocked out utilities and dam- aged buildings.
Wilkes Coun- ty, N.C.	4	3:15 p.m.			1	2			Electri- cal	Boy at Ronda killed instantly by lightning; 2 others suffered minor burns.
Iredell County, N.C.	4						3,000		do	Barn burned.
Howe, Gray- son County, Tex.	4	5:30 p.m.					5,000	10,000	Wind and hail	Damage by hail, \$10,000; by wind, \$5,000. Hailstones reported up to 1 inch in diameter. Roofs torn from several barns and garages. Considerable damage to corn and cotton.
Mt. Pleasant, Titus Coun- ty, Tex.	4	Evening					500		Electri- cal and wind	1 power transformer and 1 house hit by lightning; fire brought under control before serious damage. Electrical storm accompanied by high winds; however, wind did very little damage.
Mechanics- burg and Harrisburg, Pa.	5	Morning and af- ternoon					Several hundred	See remarks	Electri- cal and rain	In Mechanicsburg lightning struck a home, knocked 2 persons to floor, tore hole in side of house, burned holes in walls of each room, ripped out woodwork, damaged roof, and also damaged concrete block milk house 300 feet away. Heavy rains in Harrisburg area in late afternoon flooded many streets and in- tersections, hampering or stalling traffic, and damaged gardens.
Grant, Gar- field, and Kay Coun- ties, Okla.	5-6	11:45- 1:30 a.m.	*15	45		2	2,500,000		Hail, wind, rain, and electri- cal	Principal damage in city of Enid where estimated loss of \$2,000,000. Estimated loss in other areas, most- ly in Grant County, \$500,000. In Enid 2.25 inches of rain in 40 minutes. Water ran 4 feet deep in streets as storm sewers clogged by debris because of hail. Practically all roofs in town severely dam- aged by hail. Hail size of golf balls to baseballs. Extensive damage to trees. Wind measured 82 m.p.h. at Vance Airport near Enid, where damage estimated at \$15,000. Much damage, principally by wind, to houses and school at Manchester. Oil derrick blown down north of Hawley. Many turkeys killed by wind and hail. 1 barn northwest of Enid struck by light- ning and burned to ground. Damage by hail estimated at \$1,600,000; damage by wind, \$800,000; damage by water, \$95,000; damage by lightning, \$5,000.
Massachu- setts, Rhode Is- land, Con- necticut, and south- ern New Hampshire	5	Afternoon and evening			1	10	100,000		Electri- cal, winds, and rain	In association with a squall-line moving eastward across southern New England, general thunderstorm activity produced severe local storms, with reports of damage centering around (1) Greater Boston, Mass., (2) Amherst and Milford, N. H., (3) Hartford, Conn., and (4) northeastern Connecticut and central Rhode Island. Aside from \$2,000 losses from strong winds in Amherst-Milford area, practically all damage came from lightning-caused fires. Crop losses were trifling. In Greater Boston, numerous small losses to property approximated \$20,000; widespread utility and telephone breakdowns occurred; intense rain flooded streets and halted surface transportation; 1 death and 2 injuries attributed to storm. In and around Hartford, Conn., estimated \$50,000 property losses from lightning-set fires in barns and dwell- ings, with 4 persons struck by lightning but not seriously injured. At Pomfret, Conn., a \$25,000 barn fire occurred. In Coventry-West Warwick area, R. I., 4 injuries from lightning and small property losses totaling \$5,000 reported.
Yadkin Coun- ty, N.C.	5	3 p.m.					5,000	53,000	Hail	8 square miles damaged.
Rapelje, Mont.	5		440	6				4,000	do	Damage to wheat.
Sayre (7½ miles north- west of), Beckham County, Okla.	5	7:30-8:15 p.m.	880	2			2,500		Wind	2 barns damaged.
Norton Coun- ty (north- western por- tion), Kans.	5	Early evening						5,000	Hail, wind, and rain	Hail accompanied by wind and rain damaged corn crop on at least 5 farms. Stones as large as hens' eggs reported. Storm extended into Nebraska.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

AUGUST 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Harper County, Kans.	5	10:15 p.m.	*2-4	20			\$200,000	\$230,000	Hail and winds	Severe hailstorm with stones up to 2 inches in diameter struck at Harper and moved south through Anthony and across state line to Manchester, Okla. Both Harper and Anthony suffered heavy losses to roofs, plate-glass windows, and greenhouses. Crops in rural areas severely damaged. Strong wind added to destructive force of hail.
Fort Scott (3 miles south of), Bourbon County, Kans.	5	11 p.m.					4,000		Electrical	Large dairy barn and 25 tons of hay destroyed by lightning-produced fire.
Fort Scott (8 miles east of), Bourbon County, Kans.	5	Midnight					8,000		do	Lightning started fire which burned new ranch-type house and contents.
Humboldt (near), Allen County, Kans.	6	1 a.m.					87,500		do	Crude oil tank struck by lightning, burning 35,000 barrels of oil.
Western Greeley and southwestern Hamilton County, Kans.	6	4:30 p.m.					12,000	1,000	Hail and wind	Two strips of hail, one in western Greeley County and the other in a 3- by 5-mile area northwest of Syracuse in Hamilton County, damaged buildings, automobiles, and crops. Hailstones, reported as large as golf balls in Greeley County and as large as hens' eggs in Hamilton County, were driven by wind and were about 3 inches deep on level ground.
Glasgow (northeast of), Mont.	7	2:30 p.m.	*2	8-10				2,000	Hail	Damage to wheat.
Diagonal squall line from Rush to Washington County and extending south-eastward to Butler County, Kans.	7	5:30-11:15 p.m.			3	0	566,900	25,000	Wind, hail, tornadoes, and electrical	Severe storms along 150-mile squall line, with varying intensities, continued for several hours as squall line moved southeastward; greatest development in southern sector. At 6:00 to 6:30 p.m. strong winds caused heavy destruction at La Crosse, in Rush County; a tornado and windstorm raged in extreme eastern Russell and western Lincoln Counties; barns on 2 farmsteads in northern Clay County destroyed; and hail fell in southwestern Washington County. From Ellsworth County, where heavy hail fell in western portion, northward storms soon diminished in intensity, the only later damage being at Manhattan, where alfalfa dehydrator demolished at about 8 p.m. Severe winds developed at Pawnee Rock, in northeastern Pawnee County, at about 7:30 p.m.; at St. John, in Stafford County, at 8:30 p.m.; in Pratt at 9:45 p.m.; and at Kingman about 10 p.m. Only lightning damages occurred in electrical storms that developed further southeastward. 1 man killed near Pawnee Rock when his house was demolished and 2 men died from burns as result of lightning-produced fire in cabin in Butler County. Property damage by wind extremely heavy in La Crosse, Pawnee Rock, and along Russell-Lincoln County line. Hail added to wind destruction at Pawnee Rock and caused crop loss in western Ellsworth County, where it lay 6 to 7 inches deep after storm, and in Clifton vicinity in Washington County. Additional lightning damages reported were: (1) Northern Marshall County, barn and hay burned; (2) near Manhattan - poultry house at College Experimental Farm burned; (3) Marion County - 2 cows and 2 calves killed; and (4) in Sumner County, 3 cows and 4 calves killed. Funnel observed by several persons in western Lincoln County and destruction indicated tornadic action, especially a church which seemed to explode. Funnel reported seen near Kinsley, in Edwards County, at 9:45 p.m. Destruction of buildings on 1 farm attributed to tornadic action by newspaper accounts. 2 persons reported seeing funnel cloud near Attica, in northwestern Harper County, when sky was illuminated by lightning. No damage. Damage to property by hail, \$2,000; by wind and tornado, \$555,000; by lightning, \$9,900. Crop loss \$25,000, by hail.
Geary (4 miles north and 2 miles east of), Blaine County, Okla.	8	Midnight					6,000		Electrical	Barn and contents burned when struck by lightning.

See footnotes at end of table.



# SEVERE STORMS

Table 4—Continued

AUGUST 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Perry (northeast of and in), Noble Coun- ty, Okla.	8	2-3:30 a.m.					\$11,000		Winds, and electri- cal	2 barns and granary burned to ground when struck by lightning; damage estimated at \$10,500. House trailer blown over and other wind damage estimated at \$500.
Johnson County (northeast- ern por- tion), Kans.	8	Early a.m.			1				Electri- cal	Freight train conductor killed by lightning while standing on tracks.
Duplin Coun- ty, N.C.	8	A.m.			1				do	Man killed instantly at a tobacco barn at Chinquapin.
Homewood Section, near Bir- mingham, Ala.	8-9	11 a.m.					500		Wind	Minor damage to 1 house; 12 trees broken or blown over. At time of storm damage, Birmingham Weather Bureau Airport Station reported wind of only 18 m.p.h.
Buckeye, Ariz.	8	Evening.			1				Electri- cal	Man instantly killed when struck by lightning.
Philadel- phia, Pa.	9	Daytime					Several thousand		Rain	Pressure of water from series of rains burst under-ground tube carrying Mill Creek sewer, caused 40-foot hole in street, snapped utility cables when poles, car and truck fell into hole; caused porches on 3 homes to collapse, and threatened remainder of buildings. 19 homes had to be vacated.
Madison, Clark, and Franklin Counties, Ohio	9	Afternoon			1		50,000		Wind and electri- cal	Heavy property damage in Madison and Clark Counties and light damage in Franklin County. 1 man killed by lightning near Mt. Sterling; 60 tents at Clark County Fairgrounds blown down; 50 large trees up-rooted south of Springfield; 2 large barns destroyed by fire from lightning in Madison and Clark Coun- ties; electric services cut off; 2 cows killed and 3 injured. Light damage by fire to north side home in Columbus.
Marsh Center (near Down- ey), Ban- nock Coun- ty, Idaho	9	3:15 p.m.			1				Electri- cal	Woman killed in kitchen of home.
Stillwater County (central portion), Mont.	9	Mid- after- noon	*1½	30				Severe	Hail	Storm north of Reedpoint and Columbus. Damage to winter wheat, spring grain, beans, and sugarbeets.
Gibson, Mont.	9	3:30 p.m.	*3-5	35				Severe	do	Hail up to size of small egg.
Ravenswood, W. Va.	9	3:55-5:10 p.m.					Light	Light	Rain	3.55 inches of rain in 1 hour and 15 minutes; some basements flooded.
Park City, Mont.	9	4 p.m.	880- 1,760	50				\$75,000	Hail	Damage to wheat, hay, beans, corn, and gardens.
St. Marys, Waverly, Shultz, and Calf Creek sections, W. Va.	9	Early evening							Electri- cal, wind, and rain	Damage slight - confined to transmission wires and telephones.
Garden City Air Base, Finney Coun- ty, Kans.	9	Evening					5,000		Electri- cal	Lightning set fire to pump house, burning it to ground.
Batesville, Ind.	9	7-8 p.m.	100	1			2,000		Wind	Buildings damaged by falling trees.
Box Elder and Weber Counties, Utah	10	9 a.m.					See remarks	See remarks	Thunder- storms with hail and rain	Hail caused considerable damage to melons, tomatoes, and corn, with minor damage to fruit and other crops. The hard-hit area apparently was in border zone of Box Elder and Weber Counties northwest of Ogden. Minor damage also to a few buildings, to 1 highway, and to power lines. Weber County agent reported 300 acres of tomatoes totally destroyed, with 300 addi- tional acres partly destroyed and spotty damage ex- tending over about 5,000 acres. Damage apparently was primarily to melons, tomatoes, and corn, and would run well into thousands of dollars.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

AUGUST 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Monmouth, Ocean, and Burlington Counties, N. J.	10	11 a.m.— 1 p.m.	*1	45	0	0	\$35,000	\$ 0	Tornado	1 large airplane and several buildings damaged at McGuire AFB. Several garages, barns, and 2 houses wrecked in path of storm. Extensive damage to power and communications lines, and to trees.
Lewisville, Denton County, Tex.	10	Afternoon					4,000		Wind, electrical, and hail	5 barns damaged, 1 by lightning. Accompanied by light hail. \$2,000 worth of turkeys killed. Damage by wind, \$3,500; by lightning, \$500.
Eastern slope of Cascades from Wenatchee to White Pass and east to Yakima, Wash.	10	Afternoon	10	20	3	5	200,000	50,000	Wind, rain, and forest fires	Storm most severe over Umtanum Ridge about 15 miles northwest of Yakima. Mountain climber killed and another injured on Mount Stuart in Chelan County. A number of forest fires in Wenatchee and Snoqualmie National Forest. Flash flood in Yakima County along Cottonwood, Roza, and Wenas Creeks destroyed 4 homes; injured 4 persons, 2 persons drowned, washed out 2,000 feet of railroad track, damaged Highway No. 97 between Roza and Wymer, and caused several breaks in irrigation canals. High wind caused some damage to hop fields, orchards, shade trees, and power and telephone lines.
Mesa, Adams County, Idaho	10	Afternoon						See remarks	Hail	10-minute hailstorm considerably damaged fruit.
Washington and Marsh- all Coun- ties, Kans.	10	6 p.m.					5,000	2,000	Hail, wind, and rain	Hail and wind accompanying rain particularly damaged barns, windows, and roofs in 2 areas: (1) In and near Clifton in southwestern Washington County where hail heavy and (2) Vermillion to Frankfort, in central Marshall County where wind especially destructive. Property damage by wind, \$1,000; by hail, \$4,000. Crop damage by hail, \$2,000.
Rice County, Kans.	10	6:30 p.m.	*2	3			500	5,000	Hail	Small area including town of Chase hit by heavy hail, beating maize to ground, shattering windows, and damaging roofs.
Chapman (near), Dickinson County, Kans.	10	Evening					800		Electri- cal	3 head of cattle killed by lightning.
Delphos (near), Ot- tawa Coun- ty, Kans.	10	Evening					1,000		do	After being struck by lightning, barn and baled straw burned.
Rockingham County, N. C.	10	7:30 p.m.							Hail	Damage included with hailstorm of 18th.
Marion Coun- ty, Kans.	10	9 p.m.					1,000		Electri- cal	Small barn containing some alfalfa hay and fertilizer burned after lightning strike.
Allen County (eastern portion), Kans.	11	7 a.m.			1	0	0	0	do	Girl killed instantly by lightning while walking in open field.
Tucson, Ariz.	11	2 p.m.					2,000		Wind	Violent wind, in connection with thunderstorm, struck northeastern edge of Tucson; ripped barn in two and carried the north half away.
Muskogee and Tahlequah areas, Mus- kogee and Cherokee Counties, Okla.	11	Evening					15,000		Wind, and electri- cal	Extensive wind damage, estimated at \$14,000, to buildings, drive-in theatre, water tower, plate-glass windows, and telephone lines. Lightning set fire to house at Fort Gibson, with about \$1,000 damage.
Cape Girar- deau County and extreme southeast- ern part of State, Mo.	11	8 p.m.			1		°30,000	°	Rain and electri- cal	5.19 inches of rain at Cape Girardeau flooded basements of homes and business buildings, causing damage to buildings, merchandise, and furniture. Bus washed from road south of Cape Girardeau when driver attempted to cross portion of highway inundated by flash flood. 1 man drowned when he attempted to leave bus for higher ground. A new barn and milk parlor (barn producing grade A milk) near Jackson struck by lightning and destroyed along with 3 head of cattle and a considerable quantity of stored hay. Another barn near Marble Hill destroyed by lightning.
Cairo, Ill.	11	9 p.m.					200,000		Electri- cal	During heavy thunderstorm, high school struck by lightning and burned almost completely.
Phoenix area, Ariz.	12	7 a.m.				1	4,250		do	Lightning struck building, causing shock to 1 man. Lightning strikes caused haystack fire and knocked out transformer on 44kv electric transmission line.

See footnotes at end of table.



# SEVERE STORMS

Table 4—Continued

AUGUST 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Frankfort, Mich.	12	1:02 p.m.			0	0	\$ 0	\$ 0	Water- spout and tornadic cloud	Tornado-like cloud observed over Lake Michigan.
Beadle, Jer- aud, and Sanborn Counties, S. Dak.	12	Afternoon	*2-6	20			5,000	100,000	Hail, wind, and rain	Heavy hail, ranging in size from 1/4 to 1 inch in diameter, fell in area from Alpina to Forestburg to near Artesian. Hailstones picked up out of ditches next day. Strong wind blew over a few buildings. Hail stripped field crops severely; some fields 100 percent loss. Unofficially, rains up to 4 inches reported.
Gladys, W.Va.	12	Late af- ternoon					No esti- mate	No esti- mate	Wind (torna- dic)	Called "Baby Twister" by newspaper. Uprooted trees, removed roof on barn, and interrupted electric power service.
Graham, Young Coun- ty, Tex.	12	4:15 p.m.	50		0	0	12,000		Tornado	Airport office building, hangar, and 3 planes dam- aged.
Tampa, Fla.	12	Early evening			1	1			Electri- cal	Lightning struck near 2 children playing under tree; girl killed and her sister temporarily stunned.
Ogema (near), Price Coun- ty, Wis.	13	2:30 p.m.		1	1		5,000	5,000	Tornadic winds and hail	Near-tornadic winds demolished large farm barn. 1 man killed. Hail ruined some crops in vicinity.
Cascade, Valley Coun- ty, Idaho	13	4 p.m.					See remarks		Wind and rain	Some damage to buildings and trees.
Northeastern Saunders and north- eastern Cass Coun- ties, Nebr.	13	6 p.m.	110- 220	30	0	20	88,500	335,000	Tornado and hail	
Southwestern Colfax and northeast- ern Butler Counties, Nebr.	13	6:15 p.m.	Nar- row	20	0	0			do	7 sets of farm buildings badly damaged or destroyed; 6 hay stacks scattered and lost.
Golden, Colo.	13	Evening					10,000		Electri- cal	Lightning-set fire destroyed building on Lookout Mountain.
Horton (1-3/4 miles east of), Brown Coun- ty, Kans.	14	12:30 a.m.			0	0	750	0	do	Hay barn and contents of hay, grain, and implements burned, following lightning strike.
Severy (7 miles south- west of), Greenwood County, Kans.	14	Early a.m.					1,000		do	Barn and hay burned, after lightning strike.
Minnesota, northwest- ern and central counties	14	5-11:05 p.m.	*8	200	0	2	200,000	70,000	Wind (some tornadic), rain, and hail	Following a day of high temperatures, severe thunder- squalls caused much damage. Hundreds of trees up- rooted; power and communication lines down; about 25 barns, also other outbuildings, silos, granaries, windmills, farm machinery, and automobiles demol- ished or damaged; a number of livestock killed or injured; much poultry perished; houses, lake cot- tages, and buildings unroofed or otherwise damaged; several plate-glass windows blown in; chimneys top- pled; hay stacks scattered; extensive damage to corn and standing grain. In Detroit Lakes area, where greatest destruction occurred, storm assumed tor- nadic proportions. General direction of storm from northwest. Heavy rains and hail accompanied storm.
Minnesota, northwest- ern and central counties	14	5:30- 11:05 p.m.	*8	200			5,000	25,000	Hail	Moderate to heavy hail that accompanied severe thun- derstorms caused considerable damage to growing crops and some damage to real property. Some hailstones measured 1 inch in diameter. Storm moved from northwest.
Parma, Canyon County, Idaho	14	8:30-9 p.m.					See remarks	See remarks	Wind	Some damage to greenhouse and to seed crops at Ex- periment Station.
Tucson, Ariz.	14	9:30 p.m.					5,000		Electri- cal, rain, and wind	Strong winds preceding thunderstorm which swept across Tucson from south-southeast blew over trees and damaged some buildings. Lightning knocked out power. Heavy rains in north and east sections of

See footnotes at end of table.



## SEVERE STORMS

Table 4-Continued

AUGUST 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Tucson, Ariz. (Cont'd.)	14									city (estimated at more than 1 inch in 45 minutes), caused some flood damage to homes and snarled traffic. Rain damage \$3,500, lightning \$1,000, and wind about \$500.
Herington (3 miles northwest of), Dick- inson Coun- ty, Kans.	14	9:30 p.m.	100	1½	0	0	\$10,000	\$500	Tornado and hail	Small tornado whose funnel was sighted by several observers wrecked church spire and heavily damaged buildings on 3 farms. Accompanying hail, with stones size of marbles, responsible for light crop loss. Property damage by tornado; crop damage by hail.
Morris Coun- ty, Kans.	14	Night					2,000		Electri- cal	Barn with seed wheat, oats, fertilizer, and imple- ments burned, following lightning strike.
Cloud County (southwest- ern por- tion), Kans.	14	Night					4,000		do	Farm home burned, after being struck by lightning.
Frankfort (near), Marshall County, Kans.	14	Night					500		do	3 head of cattle killed by lightning.
Butler Coun- ty, Kans.	15	Mid- morning					100,000		do	Fire started when lightning knocked out power pump, which allowed oil to spill out and ignite. Did considerable damage at refinery.
Plymouth County, Iowa	15	Noon	*4	15				500,000	Hail	Severe damage from Brunsville eastward to county road 140. Also, spotty damage in Stanton Township.
Eastern Dal- las and western Polk Coun- ties, Iowa	15	Afternoon					See remarks	See remarks	Hail and wind	15 planes damaged at Camp Dodge, north of Des Moines. Hail and high winds flattened corn fields in vicini- ty of Minburn; also, wind damaged crops 8 miles northwest of Eldora.
Gays Mills (near), Crawford County, Wis.	15	Afternoon					1,500		Electri- cal	Lightning killed 5 head of cattle.
Loring, Mont.	15	3:30 p.m.	*3	25				Consider- able	Hail	10 to 40 percent damage to crops.
Baylor (west of) to near Larslan, Mont.	15		*1	8				25,000	do	
Seward and vicinity, Logan Coun- ty, Okla.	15	4:30 p.m.	75	5	0	0	40,000	2,500	Tornado, hail, and wind	Tornado damaged 18 barns and other farm outbuildings, 11 boats and 1 automobile. Likely 2 or more fun- nels, of which 1 or more were offshoots of principal cloud. In addition to tornado damage in localized path, there was high wind damage from west and south- west to trees and small buildings over general area 4x6 miles. Hail damage, \$2,500, to peaches in or- chard, ripe and ready to pick.
Shawnee and vicinity, Pottawatom- ie County, Okla.	15	Late af- ternoon					3,000		Wind	Damage to several buildings.
Harrisburg area, Pa.	15	6-8 p.m.					Several hundred		Rain, flash flooding, and wind	Heavy rains, localized over eastern Harrisburg and ad- jacent suburbs, flooded streets, over-taxed sewers and caused brief flash flooding of small streams and flooding of basements. 1 family evacuated home as water surrounded it. Tree fell across a truck, damaging it.
Werner, Dunn County, N. Dak.	15	Evening					No esti- mate		Electri- cal	Lightning struck elevator and burned it to ground.
Ronceverte, W. Va.	15	7:30-8:15 p.m.					68,000	Small	Rain	Heavy rain caused street flooding and bursting of sewers under buildings that resulted in much damage to goods stored in basements.
Tucson area, Ariz.	15	8:20 p.m.	*10				12,000		Rain and wind	High winds, accompanying thunderstorm, damaged drive- in theatre screen and blew over brick fence against several cars. Rain of cloudburst proportion in vi- cinity of Davis-Monthan AF Base caused heavy flood- ing of low residential areas, closed main travel arteries, and damaged several cars stalled in wash- es. Wind damage \$1,200; rain damage \$10,800.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

AUGUST 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Weirton, W. Va.	16	2-6 a.m.					\$3,000	No esti- mate	Rain	Damaged streets and basements, and clogged sewers. \$3,000 damage to 1 street in Weirton. Dirt from hillsides covered many streets. Small streams out of banks.
New Cumber- land, W.Va.	16	2:10-7 a.m.					No esti- mate	No esti- mate	do	Heavy rain filled small streams that washed out small foot bridges and swept immense amount of debris into Ohio River.
Lowell, Mich.	16	4 a.m.					See remarks		do	Heavy rain washed out some roads.
Grand Rap- ids, Mich.	16	6 a.m.					1,000		do	Heavy rain flooded streets and basements in many sections of City.
Ohio, cen- tral and eastern portions	16	Morning and af- ternoon					Several thousands	See remarks	Rain and thunder- storm	Damage by thunderstorms to property and crops spread over wide area. Heavy rain flooded streets, base- ments, crop fields, etc. Chardon recorded 4 inches of rainfall in 2 hours. Numerous auto accidents.
Ashland, Ky.	16	1:40-2:15 p.m.					19,000		Wind and rain	Main damage to roofs, chimneys, and autos by falling trees. Electric and telephone services disrupted. Several streets flooded. Storm described by resi- dents as "the worst ever". Most damage caused by wind.
Charleston, Clay, Beck- ley, Hunt- ington, Hurricane, and Renick area, W.Va.	16	Afternoon			4	5	Consider- able	No esti- mate	Electri- cal and wind	2 men killed and 4 injured when house was blown off hillside at Wealthy Acres. 4 light planes damaged at Charleston-Kanawha County Airport. 1 man died of heart attack during storm. Another in Fayette Coun- ty killed as he talked, on telephone, due to high tension line falling on the private telephone line of mining company. Many trees and television anten- nae blown down. At Renick barn destroyed by fire after being struck by lightning. Another barn blown down by high winds, killing 2 cows and a horse. Dur- ing same afternoon, rain, wind, and lightning did damage, mostly light or moderate, in Clay, Hunting- ton, Hurricane, and Beckley, to trees, power lines, and automobiles.
West Palm Beach, Fla.	16	3:45 p.m.	15	**300	0	0	1,800	\$200 (Live- stock)	Tornado	Storm moved southeastward. Area affected about 10 miles northwest of West Palm Beach Airport. Four- room house, under construction but nearly completed, was demolished; 2 cows killed.
Willmar and vicinity, Minn.	16	4:55 p.m.	*2	50			15,000	250,000	Hail	Heavy hail that accompanied a severe thunderstorm caused much damage to growing crops and considerable damage to real property. Hailstones unusually num- erous and covered ground entirely in places; some size of pingpong balls. Many windows broken, es- pecially in greenhouses. Some fields of corn a total loss. Storm moved from west.
Lee County, Va.	16	5:30-5:45 p.m.					20,000	2,000	Wind	Much tobacco damaged and many trees blown down. Tobacco warehouse under construction in Pennington Gap razed to ground level.
Great Valley and West Virginia- border coun- ties, Va.	16	Evening					See remarks	See remarks	do	Much minor damage to crops and buildings throughout area.
Accomac County, Va.	16	6-7:30 p.m.	1,700	3			15,400	2,000	do	Path extended from Hallwood to beyond Temperance- ville. 1 large poultry house completely destroyed; 800 broilers killed. Several farm buildings dam- aged somewhat. Electric and telephone lines out of commission by falling trees.
Rockingham County, N.C.	16	6 p.m.							Hail	Damage included with hailstorm of 18th.
Martin Coun- ty, N.C.	16	6 p.m.						8,000	do	
Baylor (northeast of), Mont.	16	Evening	440- 1,760	12				30,000	do	
Gratz, Pa.	16	7-7:30 p.m.	30	$\frac{1}{2}$	0	0	1,200	0	Tornado	Tornado moved east-southeastward through northern portion of Gratz. Barn roof ripped off and carried about 1,000 feet, and damaged other smaller build- ings.
Newport, Cocke Coun- ty, Tenn.	16	7:30-9:30 p.m.					See remarks		Wind	Heavy thunderstorm accompanied by high winds blew down trees on electric and telephone lines. Electric power off in some parts of town for 3½ hours.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

AUGUST 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Southeastern Washington and Marshall Counties, Kans.	16	Night					\$3,000		Electrical	5 head of cattle, a horse, and a barn full of hay among losses from lightning.
Phillipsburg (9 miles north of), Phillips County, Kans.	17	A.m.					1,200		do	5 head of cattle standing near fence killed by lightning.
Kansas, central portion	17	Afternoon			0	0	4,000	\$ 0	Electrical, rain, hail, and possible tornado	In severe electrical storm, with heavy localized rains and some hail in western Ellsworth County, lightning-set fires burned to ground a barn filled with alfalfa hay in northwestern Rice County, and a granary containing 1,000 bushels of wheat in eastern Russell County. Funnel-shaped cloud reported west of Ellsworth, but no damage, except to small buildings on 1 farm. No estimate of wind and hail damage.
Kansas, eastern portion	17	3-11 p.m.			1		39,000	12,500	Electrical, rain, wind, and hail	Series of electrical storms accompanied by rain and by wind and hail in scattered localities began in Washington County, moved south and east during late afternoon and evening, and reached southeastern corner of state before midnight. Reported losses from 17 lightning strikes numbered 6 barns, most of which were full of hay or feed; 1 house burned and another damaged; 20 head of cattle and 1 horse killed; and 1 woman in southeastern Wabaunsee County killed. Hail damage to roofs, windows, greenhouses, and gardens in several communities, including central Marshall County, Atchison area, eastern Pottawatomie County, southern Franklin County, central Allen, and western Bourbon Counties. Strong winds confined mostly to southeast counties, where small buildings principal sufferers. Property damage by hail, \$4,000; by wind, \$8,000; by lightning, \$27,000. Crop damage by hail, \$7,500; by wind, \$5,000.
Boone County (southeastern portion), Nebr.	17	4:45 p.m.	*4-10	10			160,000	500,000	Hail	Considerable poultry killed and livestock badly bruised.
Rockingham County, N.C.	18	4 a.m.						525,000	do	Damage total for storms on 10th, 16th, 18th in Rockingham County.
Oktoberfest County, Miss.	18	Afternoon					5,000	1,000	Wind	9 homes and 4 outbuildings damaged. Corn blown down.
Richardton, N. Dak.	18	Evening					350		Electrical	Lightning struck and killed a cow.
Winner, Tripp County, S. Dak.	18	Evening							Wind	Strong winds damaged 3 planes at Winner airport and blew down a few trees in city.
Donnelly and vicinity, Minn.	18	7-9 p.m.	*3	4			6,300		Wind, rain, and hail	A barn, silo, and windmill wrecked and many trees uprooted. General direction of storm from northwest. Heavy rains and hail accompanied thunderstorm.
Donnelly and vicinity, Minn.	18	7-9 p.m.	*3	4				25,000	Hail	Heavy hail that accompanied a severe thunderstorm caused considerable damage to growing crops. Some hailstones measured 1 inch in diameter. Storm moved from northwest. Some fields of growing crops a total loss.
Germantown to Rockville, Md.	18	8 p.m.	*1	12			10,000	20,000	Wind, hail, and electrical	Damage 70 percent due to high wind, 25 percent to hail, and 5 percent to lightning. Storm started at Germantown and moved eastward, stopping 2 miles south of Rockville. Corn damaged in fields. About 35 trees felled onto power lines, and 5 onto tops of automobiles. 1 house roof blown off.
Catawba County, N.C.	19	1 a.m.					1,000	3,500	Hail	2 square miles damaged.
Caswell County, N.C.	19	4 a.m.						77,000	do	4 square miles damaged.
Smithville (near), Lee County, Ga.	19	5:30-6 p.m.	880	2			Slight	3,750	Wind and hail	Severe thunderstorm affected 3 or more farms near Smithville. Most damage due to hail which beat down peas and other vegetables and destroyed much cotton and corn; 6 turkeys killed. Hail measured up to size of a man's thumb. Storm moved northeastward.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

AUGUST 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Plains, Sum- ter County, Ga.	19	6-6:15 p.m.	*1	3			\$10,000	\$2,000	Wind and hail	Storm moved westward through Plains, later turning southwestward. High winds moved 2 buildings off their pillars and partially unroofed several others. Open cotton blown to ground by high winds or beaten down by hail of rather small size. Total area affected, 16 square miles.
Marana (near), Ariz.	19	6 p.m.			1				Electri- cal	1 man killed by lightning while working in rain at irrigation canal on cotton ranch 15 miles southwest of Marana.
Delta Coun- ty, Colo.	19	Evening					20,000		Rain and flash flood	Homes and irrigation canal destroyed.
La Moure County, N. Dak.	19	Evening			0	0	Consider- able		Wind, hail, and possible tornado	Storm moved southeastward with heaviest storm area apparently about 5 miles north of Edgeley; storm may possibly have included a tornado. REA line knocked out. Red Cross reported 143 homes damaged, 37 other buildings destroyed and 131 damaged.
Iredell County, N.C.	19	9 p.m.						10,000	Hail	2 square miles damaged.
LeSueur, Rice, and Goodhue Counties, Minn.	19-20	11 p.m. - 2:30 a.m.		120			80,500	See remarks	Wind	A number of barns, outbuildings, silos, and windmills demolished or damaged; small amount of livestock killed; many trees uprooted; growing crops damaged. General direction of thunderstorm from west.
LeSueur, Rice, and Goodhue Counties, Minn.	19-20	11 p.m. - 2:30 a.m.					15,000		Electri- cal	15 head of cattle standing on slab of concrete near barn killed by lightning. 2 others on nearby farms also perished when struck by lightning. A barn and machine shed destroyed by fire after being struck by lightning, in which several cows perished.
Delaware, Fayette, and Chicka- saw Coun- ties, Iowa	20	2:30-7 a.m.	*7	25 (in Dela- ware Coun- ty)			200,000	800,000	Hail, winds, and electri- cal	Principal damage in Delaware County from near Strawberry Point to near Hopkinton. Severe damage also between Nashua and Frederika in Chickasaw County. Spotted damage elsewhere in the 3 counties. Crops ruined, with corn fit only for silage; communica- tion lines down; considerable breakage of glass. 4 barns struck by lightning, of which 3 burned com- pletely. Another barn destroyed by high winds and several damaged. Numerous birds and small animals killed by hail, which measured up to 1-3/4 inches in diameter.
Montgomery County, Md.	20	6 a.m.					3,000		Electri- cal, wind, and rain	
Davison County, S. Dak.	20	Morning	*2-4	9					Rain	Heavy downpour of rain in Mt. Vernon area gave 5 inches or more of moisture in 27-square mile area in 3-hour period. Rain survey indicated rains reached 8½ to 9 inches in small area 2 miles south and 3 miles west of Mt. Vernon.
Winslow area, Ariz.	20	5:12 p.m.	*10	20			5,000		do	High intensity rainfall (0.74 in 1 hour and 13 min- utes at Winslow) caused considerable damage to secondary roads, levees, and bridges.
Ellis Coun- ty, Kans.	20	Evening					10,000		Electri- cal	2 oil storage tanks exploded and burned as result of lightning strike.
Peoria- Chillicothe area, Ill.	20	10 p.m.				1	30,000		Electri- cal and rain	During heavy thunderstorm, a barn struck near Chil- licothe and burned; loss estimated at \$20,000. Heavy rains shorted out transmission lines around Peoria, and falling trees and limbs also caused utility damage. Residence struck in Peoria and another in Bartonville. In East Peoria, gas atten- dant knocked unconscious by lightning strike nearby.
Coddington, Portage County, Wis.	20						10,000		Electri- cal	Fire destroyed farm home.
Sedalia, Mo.	21	12:30 a.m.	300	3	1	13	1,500,000 to 2,000,000		Tornado	Tornado struck Sedalia where Missouri State Fair was in progress. Greatest damage at Fair Grounds, where tents, buildings, trucks, house trailers, and amuse- ment installations damaged or destroyed; midway al- most totally destroyed and many valuable exhibits destroyed or damaged. Man killed when his house trailer was demolished.
Scott City (vicinity of), Scott County, Kans.	21	Early a.m.					1,000		Electri- cal	2 lightning strikes caused loss of nearly 1,000 bales of alfalfa hay and a stack of headed wheat.

See footnotes at end of table.



## SEVERE STORMS

AUGUST 1952

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Cordell (south of), Washita County, Okla.	21	4-6 p.m.	*3	5			\$500	\$500	Hail and wind	About \$500 hail damage to cotton crop; about \$500 damage to a few farm buildings by wind.
Pryor (2½ miles north- west of), Mayes Coun- ty, Okla.	21	Evening					900		Wind	Hay barn destroyed by wind, the third time a barn in this location destroyed by wind.
Warwick, Lincoln County, Okla.	21	Evening					3,000		do	Community church struck by wind and moved from foun- dation. Although church service in progress and many inside, no one was injured. A house in War- wick also damaged.
Delta, Colo.	21						25,000		Wind and rain	Buildings chief loss.
Denmark, S.C.	22	Afternoon					1,200		Electri- cal	4 cows destroyed by lightning.
Pageland (15 miles south of), Ches- terfield County, S.C.	22	Afternoon			2				do	2 deaths caused by lightning.
Bluewater, N. Mex.	22	P.m.					See remarks	25,000	Rain, hail, and flood	Hail caused some damage to local crops, while flood of arroyos damaged property in town.
Wichita Falls, Tex.	22	5 p.m.	250				6,500		Wind	Destroyed 1 small hangar, damaged 2 other hangars, and damaged 2 planes at Holman Airport, about 3 miles south of downtown Wichita Falls, or 9 miles south of Municipal Airport. Apparently this was not a tornado as reported in newspapers. Wind speed up to 75 m.p.h.
Laramie Coun- ty (eastern portion), Wyo.	23	Afternoon	*2	20				10,000	Hail	Principal damage to field crops. Damage would have been much greater, but most crops harvested.
Greenland Ranch, Colo.	23	3:30 p.m.	*3	5			15,000	80,000	Hail and rain	
Los Alamos (near), N. Mex.	23	P.m.					See remarks		Rain, hail, and flood	Flooding of small streams washed out highway.
Wilkes Coun- ty, N.C.	23	5 p.m.						3,400	Hail	3 square miles damaged.
Fort Morgan, Colo.	23	6 p.m.	*4	8				See remarks	do	Sugarbeets damaged.
Maricopa County, Ariz.	24	Morning and evening					1,225		Electri- cal and rain	Severe lightning storm in early morning shattered some poles and damaged transformer and some subst- ation equipment. Heavy rains in evening caused local washouts on Black Canyon Highway. Lightning damage \$900, rain \$325.
Clifton (near), Ariz.	24	4 p.m.	*4	8			10,000	500	Hail, rain, and flash flooding	Hail damage to fruit from Cherry Lodge to Metcalf \$500. Flash flooding caused \$10,000 damage to roads, bridges, and culverts in that area. Hail- stones averaged ½ inch with some up to 1 inch in diameter.
Napoleon (7 miles south of), N. Dak.	25	5:15 p.m.	*4	20		2	Consider- able	Consider- able	Rain, flash flood, and elec- trical	Around 6 inches of rain reported which washed out roads, a section of railroad track, crops, etc. Soo Line train derailed by washout of tracks; 2 men in- jured from steam burns in cab of engine. Lightning struck hay stacks and also killed a cow.
Almont (south and south- west of), N. Dak.	26	Evening					2,000	No esti- mate	Electri- cal and rain	Lightning struck hay stacks, setting them afire; dam- age estimated at \$1,200. Cloudburst 14 miles south- west of Almont washed away 400 bushels of wheat which had been piled up in a coulee; loss estimated at \$800.
Joplin, Mont.	27	Noon	*4	10				10,000	Hail	
Morris and vicinity, Minn.	27	3:25-4:20 p.m.	200	40	0	3	25,000	See remarks	Wind and possibly tornado	Many trees uprooted; large barn demolished; outbuild- ings, silo, filling station, houses, and buildings damaged; aerials down; plate-glass windows blown in; poles and wires down. Falling trees caused consid- erable damage. Some damage to growing crops. Storm

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

AUGUST 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Morris and vicinity, Minn. (Cont'd.)	27									moved from southwest. A number of residents of Morris claim they observed a funnel-shaped cloud about a mile west of town where first great destruction occurred on a farm. Uprooted trees reported lying on ground in same and different directions. Path of storm not continuous.
Grants, N. Mex.	28	P.m.					\$2,850	\$20,000	Flash flood	25 acres of lettuce total loss. Carrots damaged. Buildings in town flooded.
Lindsay, Mont.	28	Midnight	880				Some	Severe	Hail	Wheat, corn, and feed crops damaged. Some damage to roofs.
Yampa, Colo.	29				1				Electrical	
Dillon, S.C.	29	Night					2,000		Wind	Damaged property and interrupted communications and power.
Yancey County, N.C.	30	2 p.m.					1,000	24,000	Hail	20 square miles damaged.
Almont (southwest of), N.Dak.	30	Evening	*4 to 5	16 to 20			Considerable	See remarks	Rain	Heaviest rain in 23 years reported at cooperative station 7 miles southwest of Almont. Much damage to crops, roads and fences. 1 soil conservation dam washed out.
South Carolina (eastern portion)	30-31	10:30 p.m., 30th-noon, 31st			2		700,000	1,500,000	Hurricane	Hurricane "Able" entered near Beaufort and moved northward, causing damage mostly in eastern half of State. Damage \$500,000 to property, \$200,000 to communications, and about \$1,500,000 to cotton by lowering grades from beating down.
Hastings, Mich.	31	10:30 a.m.			1				Electrical	Farmer struck by lightning while in field.
Onaway, Mich.	31	A.m.			1				do	Man struck by lightning.
Alpena County (east half), and Thunder Bay, Mich.	31	12:40-2:40 p.m.	*6		0	1	2,000		Rain, winds, and electrical	Excessive precipitation and winds to 52 m.p.h. caused several river surges and some wind damage. Utility lines and side of 1 house struck by lightning. High winds and lightning each caused an estimated damage of \$800. Heavy rain \$400 damage.
Piedmont and Blue Ridge sections, Va.	31	Afternoon and night					See remarks	See remarks	Wind and rain	Considerable minor damage to crops and property during passage of hurricane over area.
Franconia, Va.	31	10:30 p.m.	100	2	0	0	35,000		Tornado	1 house virtually demolished; 2 others extensively damaged. Several other houses damaged to lesser extent. Several smaller buildings demolished or damaged. Trees and wires blown down.
Potomac, Md.	31	11 p.m.	70	2	0	0	20,000		do	3 houses damaged, 1 extensively; 2 other farm buildings demolished. Numerous trees uprooted or twisted off. At Potomac tornado path could be traced for about $\frac{1}{2}$ mile, after which it apparently lifted; but, again reached surface about 1 mile further northwest where path could be traced for about another $\frac{1}{2}$ mile before it again lifted. May have been continuation of Franconia, Va., tornado.
Plainfield, Waushara County, Wis.	31							1,000	Hail	Hail ruined some corn.
Stokes County, N.C.	31						5,000		Tornado	Several farm buildings destroyed or damaged.
Wake County, N.C.	31						10,000		Hurricane rains	Heavy rains resulting from hurricane "Able" damaged city of Raleigh reservoir dam, and washed out some highway embankments.
North Carolina, central portion	31						25,000 to 50,000	Some	do	Heavy rains from dying hurricane, being especially heavy on southern Piedmont. A few washouts and temporary road blockages.

See footnotes at end of table.



# SEVERE STORMS

Table 4-Continued

AUGUST 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
DELAYED REPORTS:										
Sidney (27 miles east- southeast of), Nebr.	July 12								Tornado	Tornado funnel 5,000 feet or more in height; had well developed dust cloud at base. Appeared to be moving over open wheat fields; observed for period of 20 to 25 minutes.
Covington County, Miss.	July 29	4 p.m.			0	0	\$17,000	\$ 0	do	Details not available; 3 buildings destroyed, 14 damaged.
Arimo and Robin, Bannock County, Idaho	July 31						1,200	196,000	Hail and rain	Grain crop, valued at \$16,000, destroyed on Pierre Sercel property. Half of grain crop on Robin Bend destroyed; about 1,000 acres valued at \$180,000. Hail damage, \$140,000; flood damage, \$40,000. 1 mile of Arimo-Robin road washed out.

- Miles instead of yards.
- Yards instead of miles.
- Crop damage included with other property damage.



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

AUGUST 1952

There was no major flooding during August. A few flash floods were reported in the Ohio and Columbia Basins and in the West Gulf of Mexico drainage. The most important of these occurred in the Ohio Basin at Ronceverte, W. Va.

ATLANTIC SLOPE.--Flood stage was reached on the Neuse River at Smithfield, N. C., on the 11th due to heavy showers (1 inch) on the 7th and 8th. The rainfall in the Upper Roanoke Basin ranged from 1 to 4 inches but no flooding resulted.

Missouri Basin.--The only flooding reported during the month in the Missouri Basin was minor overflows on the Nemaha River at Falls City, Nebr., on the 21st and on the Nishnabotna River at Hamburg, Iowa, on the 30th.

Ohio Basin.--A flash flood occurred at Ronceverte, W. Va., on the 15th due to extremely heavy rain which began about 7:45 p.m. and lasted only about 45 minutes. The precipitation during this storm was the heaviest to the north and east of town along Montgomery Hollow which flows through the town. Montgomery Hollow is usually dry during the late Spring and Fall months. In the business district some portions of the stream bed are covered with buildings, and for a distance of approximately two blocks the stream is forced into culverts. It is in this section

that the damage occurs, as the excessive flow spills into the streets and comes up into the buildings through the floors and openings. This storm and flood occurred in the same area as the one of June 9, 1951. In both storms the heavy rainfall was confined to the immediate area around Ronceverte, and was limited to a minor inbank rise in the Greenbrier River. The damages in this storm were estimated at \$68,000.

WEST GULF OF MEXICO.--Minor flooding occurred on the Rio Grande at Albuquerque, N. Mex., on the 12th due to heavy thundershowers during the afternoon and evening of the 11th in portions of the watershed above Albuquerque. No damage resulted.

A flash flood occurred in the Bluewater, N. Mex. area on the 22d due to locally heavy showers causing minor damage to buildings and crops. On the 23d heavy showers washed out a section of the highway between Los Alamos and Santa Fe, and on the 28th the Grants area was damaged to the extent of approximately \$25,000 by a flash flood.

Columbia Basin.--Flash floods occurred on Wenas and Cottonwood Creeks, 15 miles northwest of Yakima, Wash., during the late afternoon of the 10th due to heavy showers. A mother and her son were reported drowned.

## FLOOD STAGE DATA

(All dates in August unless otherwise specified)

Table 5

AUGUST 1952

River and station	Flood stage	Above flood stages -dates		Crest *	
		From--	To--	Stage	Date
MISSISSIPPI SYSTEM	<i>Ft.</i>			<i>Ft.</i>	
Upper Mississippi Basin					
Mississippi: Aitkin, Minn.	12	July 19	8	14.4	July 28
Missouri Basin					
Nishnabotna: Hamburg, Iowa	20	30	30	21.6	30
Nemaha: Falls City, Nebr.	20	21	21	22.3	21
WEST GULF OF MEXICO DRAINAGE					
Rio Grande: Albuquerque, N. Mex.	4	12	12	4.7	12

\* Provisional.



# RADIOSONDE DATA

Average monthly values

AUGUST 1952

Table 20

Standard pressure surface (mb.)	ALBUQUERQUE, N. MEX. (840 MB.)				ATLANTA, GA. (982 MB.)				BIG SPRING, TEX. (924 MB.)				BISMARCK, N. DAK. (954 MB.)				BOISE, IDAHO (913 MB.)				BROWNSVILLE, TEX. (1013 MB.)				BUFFALO, N. Y. (991 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	1,629	25.7	43	31	309	24.0	78	31	784	31.2	35	30	505	20.8	63	31	868	25.8	30	31	7	27.6	78	31	221	19.4	77
1,000	31	1,444			31	1,449			31	1,622			30	90			31	51		31	31	118	27.0	78	31	142		
950	31	517			31	601	24.0	68	31	534			30	543	21.3	59	31	515		31	31	581	24.3	74	31	591	19.0	65
900	31	1,007			31	1,073	21.4	68	31	1,019	31.3	29	30	1,008	20.2	52	31	991	27.3	21	31	1,045	22.4	59	31	1,050	16.6	65
850	31	1,512			31	1,567	18.3	68	31	1,528	27.3	33	30	1,499	17.3	52	31	1,493	23.8	20	31	1,541	20.2	49	31	1,534	13.2	68
800	31	2,047	23.3	36	31	2,084	14.9	67	31	2,061	22.5	41	30	2,013	13.8	51	31	2,017	19.5	23	31	2,061	17.3	46	31	2,042	10.3	62
750	31	2,609	19.0	41	31	2,635	11.5	67	31	2,620	17.4	51	30	2,559	10.0	52	31	2,574	14.8	27	31	2,614	14.1	41	31	2,587	7.8	51
700	31	3,195	14.2	50	31	3,202	6.1	63	31	3,203	12.1	62	30	3,123	6.1	51	31	3,146	9.8	32	31	3,188	10.6	41	31	3,143	5.0	44
650	31	3,817	8.9	61	31	3,816	4.7	59	31	3,824	7.5	61	30	3,731	2.0	48	31	3,758	4.8	37	30	3,807	6.8	40	31	3,748	1.7	30
600	31	4,473	3.5	70	31	4,460	1.2	54	31	4,474	3.1	56	30	4,367	-2.4	46	31	4,402	-5	39	30	4,455	3.0	39	30	4,363	2.0	35
550	31	5,179	-1.7	74	31	5,158	-2.5	46	31	5,178	-1.2	51	30	5,057	-6.6	40	31	5,092	-5.5	38	29	5,161	-1.1	37	30	5,072	-6.2	
500	31	5,926	-6.7	70	30	5,906	-6.9	41	31	5,930	-5.5	42	30	5,791	-11.4	36	31	5,833	-10.2		29	5,908	-5.8	34	29	5,810	-10.8	
450	30	6,755	-11.4	62	30	6,729	-12.0	42	31	6,758	-10.1	31	30	6,600	-16.9	34	31	6,641	-15.8		29	6,740	-10.9		29	6,617	-16.2	
400	30	7,639	-16.8	53	29	7,613	-17.9	44	31	7,648	-16.5		30	7,465	-23.0	34	31	7,514	-22.2		29	7,621	-16.7		29	7,488	-22.7	
350	30	8,628	-23.8	45	29	8,597	-24.9	44	31	8,637	-23.7		28	8,428	-30.5		31	8,480	-29.7		28	8,608	-24.2		29	8,453	-30.1	
300	30	9,735	-32.2	42	29	9,699	-33.2	42	31	9,744	-32.3		28	9,504	-38.9		31	9,560	-37.9		28	9,711	-32.9		29	9,532	-38.2	
250	30	10,995	-42.3		29	10,954	-43.1		31	11,003	-42.4		27	10,731	-47.8		31	10,791	-46.8		28	10,966	-42.9		29	10,764	-46.8	
200	30	12,466	-54.0		29	12,418	-55.0		31	12,474	-54.0		27	12,181	-53.8		31	12,247	-53.1		30	12,432	-54.4		26	12,312	-53.3	
175	30	13,311	-60.2		27	13,260	-60.9		31	13,318	-60.2		24	13,028	-55.0		31	13,101	-55.6		28	13,274	-60.5		26	13,067	-55.0	
150	30	14,258	-66.3		26	14,203	-66.5		31	14,264	-66.5		24	14,008	-56.5		31	14,078	-57.6		28	14,218	-66.5		26	14,047	-57.8	
125	29	15,350	-70.6		23	15,295	-70.0		31	15,351	-71.3		24	15,158	-58.5		31	15,222	-60.0		28	15,307	-70.9		23	15,188	-59.2	
100	23	16,678	-69.2		22	16,628	-66.6		27	16,674	-70.2		24	16,556	-59.1		31	16,608	-61.0		28	16,625	-70.6		21	16,586	-58.6	
80	20	18,026	-63.6		18	17,988	-62.8		27	18,015	-64.9		21	17,955	-57.1		30	18,001	-58.6		25	17,960	-66.5		20	17,935	-56.7	
60	19	19,816	-58.3		17	19,779	-58.9		24	19,794	-59.2		19	19,791	-53.3		27	19,829	-54.4		25	19,719	-62.0		18	19,832	-53.9	
50	18	20,968	-56.4		10	20,921	-57.7		22	20,945	-56.9		19	20,968	-51.9		25	21,000	-52.4		24	20,853	-59.1		17	21,006	-52.5	
40	16	22,387	-54.5		8	22,321	-55.0		20	22,365	-54.9		17	22,419	-49.9		23	22,448	-50.7		22	22,265	-55.7		14	22,455	-50.7	
30					6	24,176	-51.2		16	24,220	-51.6		15	24,306	-47.9		18	24,329	-48.8		13	24,099	-52.8		8	24,334	-48.6	
20																	9	27,018	-45.6		7	26,741	-50.1					
15																	5	28,890	-44.8									

Standard pressure surface (mb.)	BURRWOOD, LA. (1015 MB.)				CARIBOU, ME. (992 MB.)				CHARLESTON, S. C. (1015 MB.)				COLUMBIA, MO. (987 MB.)				DODGE CITY, KANS. (923 MB.)				EL PASO, TEX. (880 MB.)				ELY, NEV. (810 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	3	27.4	82	31	191	15.7	79	31	13	24.7	86	31	238	22.8	75	31	792	26.6	55	31	1,195	29.6	37	31	1,908	21.6	32
1,000	30	136	27.2	78	31	124			31	143	25.5	80	31	122			31	76			31	36			31	30		
950	30	596	24.5	74	31	566	17.3	63	31	600	23.5	75	31	577	23.5	61	31	541			31	513			31	504		
900	30	1,062	21.7	70	31	1,023	14.5	63	31	1,067	20.7	74	31	1,044	21.1	60	31	1,018	27.6	46	31	1,003			31	985		
850	30	1,556	18.8	66	31	1,503	11.3	65	31	1,560	17.9	69	31	1,537	18.8	54	31	1,523	24.5	45	31	1,507	28.8	31	31	1,486	23.7	26
800	30	2,075	15.8	63	31	2,007	8.2	65	31	2,077	15.0	67	31	2,056	16.0	48	31	2,051	20.7	49	31	2,043	24.5	35	31	2,018		
750	30	2,625	12.6	62	31	2,543	5.2	59	31	2,625	11.6	66	31	2,605	12.8	48	31	2,607	16.4	53	31	2,609	19.5	44	31	2,581	20.1	26
700	30	3,197	9.4	58	31	3,098	2.2	56	31	3,196	8.2	62	31	3,178	9.1	46	31	3,188	12.1	54	31	3,192	14.2	51	31	3,167	14.9	30
650	29	3,812	5.9	53	31	3,698	-5	42	31	3,811	4.7	55	31	3,790	5.2	45	31	3,806	7.6	55	31	3,816	8.9	57	31	3,789	9.1	38
600	28	4,459	2.2	48	31	4,330	-4.0	37	31	4,454	1.1	50	31	4,437	1.0	44	31	4,460	2.8	55	31	4,469	3.6	63	31	4,444	3.1	48
550	28	5,162	-1.8	44	31	5,015	-7.7		30	5,158	-2.7	42	31	5,133	-3.2	43	31	5,161	-2.1	55	31	5,173	-1.6	63	31	5,140	-3.1	56
500	28	5,909	-6.2	38	31	5,747	-12.3		30	5,903	-7.0	38	31	5,880	-7.6	41	31	5,910	-6.7	45	29	5,924	-6.3	56	30	5,888	-9.0	54
450	28	6,733	-11.3	40	31	6,549	-17.4		30	6,729	-12.0	37	31	6,698	-12.7	36	31	6,733	-11.7	38	30	6,749	-10.9	43	31	6,705	-14.0	
400	27	7,621	-17.2	36	31	7,416	-23.8		30	7,610	-17.8		31	7,582	-18.4		30	7,618	-17.5	33	29	7,637	-16.4	32	31	7,582	-19.7	
350	27	8,607	-24.4		31	8,376	-31.0	3																				



# RADIOSONDE DATA

Average monthly values

AUGUST 1952

Table 20-Continued

Standard pressure surface (mb.)	JOLIET, ILL. (995 MB.)				LAKE CHARLES, LA. (1014 MB.)				LANDER, WYO. (830 MB.)				LAS VEGAS, NEV. (933 MB.)				LITTLE ROCK, ARK. (1004 MB.)				MAZATLAN, MEXICO (1006 MB.)				MEDFORD, ORE. (967 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	179	19.5	83	31	5	26.6	85	31	1,696	20.8	38	30	660	34.2	19	31	79	26.5	75	30	14	29.2	72	31	401	25.7	40
1,000	31	131	15.6		31	130	27.3	78	31	47			30	27			31	118	27.2	71	30	88	28.6	74	31	101		
950	31	590	20.8	65	31	590	25.4	68	31	515			30	499			31	578	26.6	59	30	556	25.5	75	31	561	25.4	38
900	31	1,043	17.8	62	31	1,058	22.5	66	31	993			30	986	33.8	18	31	1,049	23.2	61	30	1,019	23.0	76	31	1,026	91.9	41
850	31	1,530	15.1	54	31	1,554	19.6	63	31	1,490			30	1,498	29.3	20	31	1,545	19.9	60	30	1,517	20.2	77	31	1,519	18.0	46
800	31	2,041	12.5	49	31	2,075	16.5	59	31	2,018	21.1	34	29	2,034	24.5	25	31	2,066	16.7	55	30	2,039	17.3	76	31	2,034	13.8	53
750	31	2,586	9.7	48	31	2,627	13.4	55	31	2,578	16.9	37	29	2,599	19.3	32	31	2,616	13.7	48	30	2,596	14.6	72	31	2,581	10.0	54
700	31	3,151	6.4	50	31	3,200	10.6	48	31	3,156	12.2	41	29	3,182	13.8	40	30	3,191	10.3	44	29	3,170	11.5	68	31	3,146	7.0	41
650	31	3,756	2.8	46	31	3,818	6.9	47	31	3,776	7.0	48	29	3,804	8.3	47	30	3,808	6.7	41	29	3,791	7.3	70	31	3,755	3.5	32
600	31	4,399	9.4	41	30	4,467	3.0	46	31	4,423	1.6	55	29	4,457	3.2	46	30	4,457	2.6	45	29	4,440	2.6	73	31	4,396	1.3	
550	31	5,090	4.8	40	30	5,170	1.0	38	31	5,117	4.0	59	29	5,152	1.5	33	30	5,159	1.6	45	28	5,145	2.0	69	30	5,089	4.5	
500	30	5,831	9.3		30	5,921	5.4	37	31	5,861	9.3	52	29	5,909	6.6	28	30	5,908	5.9	39	28	5,891	6.4	62	30	5,831	9.6	
450	30	6,641	14.4		30	6,748	10.7		31	6,675	14.7	46	29	6,738	12.1		30	6,737	10.6	29	28	6,714	11.0	55	30	6,644	15.6	
400	28	7,521	20.6		30	7,637	16.8		30	7,547	20.9	42	29	7,616	17.8		30	7,623	16.4	29	28	7,604	16.6	53	30	7,515	22.2	
350	27	8,492	28.2		29	8,621	24.1		30	8,520	27.9	37	28	8,599	25.0		30	8,613	23.7		27	8,595	23.5	47	30	8,482	29.6	
300	27	9,580	36.5		29	9,726	32.6		30	9,609	35.9		28	9,700	33.2		30	9,719	32.2		25	9,700	31.9		30	9,561	37.9	
250	25	10,822	45.7		29	10,983	42.7		30	10,851	44.6		28	10,958	42.3		29	10,978	42.0		25	10,962	41.7		29	10,793	46.6	
200	23	12,280	54.1		28	12,449	54.3		29	12,318	52.4		28	12,433	52.6		29	12,451	53.2		23	12,436	54.0		29	12,250	52.9	
175	22	13,131	57.2		27	13,291	60.7		29	13,173	56.1		28	13,284	56.1		28	13,297	59.2		21	13,281	60.6		29	13,186	65.6	
150	21	14,098	60.1		26	14,233	67.1		26	14,140	59.5		27	14,242	63.5		28	14,249	65.0		18	14,219	67.4		29	14,082	67.7	
125	19	15,251	62.2		25	15,317	71.2		26	15,272	62.0		27	15,348	69.3		27	15,346	69.2		12	15,299	72.0		28	15,285	69.7	
100	17	16,599	62.1		21	16,632	70.1		22	16,639	61.7		25	16,681	67.9		25	16,680	67.7		6	16,611	71.4		24	16,611	60.2	
80	15	17,986	58.7		21	17,974	64.8		17	18,044	58.0		22	18,034	63.0		22	18,035	63.0						23	18,002	58.7	
60	13	19,810	55.2		18	19,752	60.5		14	19,873	53.3		23	19,830	57.8		21	19,824	58.4						20	19,824	54.7	
40	12	20,975	53.5		16	20,886	57.9		12	21,051	51.6		21	20,988	55.8		20	20,974	55.8						18	20,997	52.5	
30	10	22,408	51.9		12	22,293	54.9		8	22,510	49.6		21	22,414	51.3		16	22,404	53.6						15	22,441	50.8	
20	8	24,271	50.0		9	24,127	51.8		5	24,381	48.7		11	24,275	47.9		6	24,264	50.0						7	24,386	48.8	
15													6	28,845	45.9													

Standard pressure surface (mb.)	MERIDA, MEXICO (1013 MB.)				MIAMI, FLA. (1016 MB.)				NANTUCKET, MASS. (1016 MB.)				NASHVILLE, TENN. (995 MB.)				NORTH PLATTE, NEBR. (916 MB.)				OAKLAND, CALIF. (1014 MB.)				OKLAHOMA CITY, OKLA. (967 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	27	27	26.1	83	31	145	26.4	80	30	140	19.1	92	31	177	25.5	70	31	849	20.7	71	31	6	16.1	76	31	391	28.4	61
1,000	27	139	25.9	81	31	145	27.0	75	30	150	20.7	82	31	131			31	75			31	121	14.5	78	31	89		
950	27	596	24.4	76	31	597	24.2	75	30	599	19.6	67	31	586	25.2	59	31	532			31	571	19.0	50	31	555	29.7	52
900	27	1,065	21.7	75	31	1,070	21.2	73	30	1,058	17.1	63	31	1,057	21.9	62	31	1,004	23.3	64	31	1,025	22.2	22	31	1,031	27.3	50
850	27	1,560	18.7	76	31	1,563	18.1	71	30	1,544	13.9	65	31	1,551	18.3	65	31	1,503	22.0	53	31	1,519	20.1		31	1,534	24.1	49
800	27	2,079	15.7	74	31	2,080	14.9	68	30	2,053	11.1	63	31	2,068	14.7	68	31	2,027	18.8	53	31	2,038	17.1		31	2,062	20.2	53
750	27	2,624	12.5	70	31	2,622	11.6	65	30	2,594	8.2	55	31	2,612	11.4	59	31	2,585	15.6	47	31	2,593	13.9		31	2,623	16.0	58
700	27	3,202	9.3	68	31	3,199	8.3	59	30	3,156	5.3	48	31	3,184	8.4	47	31	3,160	11.5	47	31	3,162	10.2		31	3,197	11.7	56
650	27	3,813	5.8	65	31	3,805	4.6	60	30	3,763	2.2	44	31	3,799	5.2	44	31	3,777	6.7	52	31	3,781	6.5		31	3,821	7.4	60
600	27	4,464	1.9	64	31	4,455	0.9	59	30	4,401	1.2	39	31	4,443	1.6	41	31	4,427	1.7	51	31	4,426	2.5		31	4,467	2.8	64
550	26	5,166	2.1	63	31	5,150	3.1	52	30	5,092	5.2		31	5,143	2.1	39	29	5,122	3.1	49	31	5,125	2.1		31	5,175	1.6	60
500	25	5,913	6.4	62	31	5,898	7.4	52	30	5,831	10.1		31	5,891	6.5	39	29	5,870	7.8	44	31	5,874	7.2		31	5,920	5.8	50
450	24	6,739	11.3	66	31	6,719	12.0	61	29	6,643	11.8	44	31	6,717	11.8	37	29	6,690	13.1	43	31	6,691	13.3		31	6,750	10.3	39
400	24	7,624	16.8	61	31	7,605	17.6	40	29	7,514	12.1	2	31	7,599	12.7	35	29	7,570	18.9	40	31	7,570	20.3		31	7,637	16.3	33
350	23	8,611	24.0	57	31	8,589	24.6	40	29	8,485	28.4		31	8,582	24.7	33	29	8,550	26.3	43	31	8,544	27.7					



# RADIOSONDE DATA

Average monthly values

AUGUST 1952

Table 20—Continued

Standard pressure surface (mb.)	SAN JUAN, P. R. (1014 MB.)				SANTA MARIA, CALIF. (1006 MB.)				S. STE. MARIE, MICH. (990 MB.)				SPOKANE, WASH. (930 MB.)				SWAN ISLAND, W. I. (1013 MB.)				TACUBAYA, MEXICO (774 MB.)				TAMPA, FLA. (1016 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	19	26.5	84	31	71	13.7	87	31	221	14.8	88	31	722	23.4	29	31	10	27.2	83	31	2,306	16.5	73	31	9	25.7	85
1,000	31	145	26.2	81	31	119	13.3	86	31	133			31	85			31	122	26.8	82	31	64			31	149	26.3	80
950	31	597	23.5	80	31	575	20.2	55	31	576	16.6	68	31	541			31	581	23.8	81	31	528			31	608	23.8	78
900	31	1,068	20.4	79	31	1,025	24.3	23	31	1,030	14.4	66	31	1,011	22.0	29	31	1,047	20.7	80	31	1,004			31	1,074	21.1	73
850	31	1,561	17.6	75	31	1,523	22.5	21	31	1,511	11.5	62	31	1,502	17.6	35	31	1,539	18.1	74	31	1,499			31	1,568	18.2	72
800	31	2,078	15.2	63	31	2,046	18.9	26	31	2,016	8.9	61	31	2,016	12.9	42	31	2,057	15.2	68	31	2,028			31	2,086	15.1	72
750	31	2,630	12.3	56	31	2,601	14.8	26	31	2,550	5.8	55	31	2,565	8.4	45	31	2,604	12.3	60	31	2,584	14.9	72	31	2,638	11.9	69
700	31	3,200	9.1	51	31	3,175	11.0	27	31	3,109	2.5	56	31	3,120	4.4	44	31	3,177	8.9	57	31	3,159	10.9	73	31	3,206	8.8	62
650	31	3,819	5.4	48	31	3,794	7.0	28	31	3,710	- .5	46	31	3,725	- .5	39	31	3,792	5.4	56	31	3,780	6.5	78	31	3,823	5.4	62
600	31	4,461	1.8	45	31	4,441	2.5	29	31	4,342	- 3.8	40	31	4,356	- 3.8	40	31	4,438	1.6	51	31	4,428	2.2	82	31	4,467	1.7	59
550	31	5,166	- 1.9	36	31	5,142	- 2.0		30	5,021	- 7.8	39	31	5,043	- 7.9	41	31	5,133	- 2.6	51	31	5,133	- 2.1	83	31	5,172	- 2.3	56
500	31	5,910	- 6.3	36	31	5,890	- 7.0		29	5,755	- 12.5	39	31	5,771	- 12.6	35	30	5,884	- 7.0	49	31	5,879	- 6.1	80	30	5,915	- 6.6	50
450	31	6,739	- 11.6	28	31	6,708	- 12.5		31	6,585	- 16.6	35	31	6,567	- 18.5	35	30	6,702	- 12.0	48	31	6,708	- 10.8	72	30	6,749	- 11.6	48
400	31	7,618	- 16.1		31	7,594	- 18.7		29	7,425	- 24.0		31	7,434	- 24.9	36	30	7,591	- 17.5	49	31	7,595	- 16.4	61	30	7,624	- 17.4	47
350	31	8,600	- 25.6		31	8,574	- 26.3		29	8,384	- 31.6		31	8,390	- 32.3		30	8,576	- 24.2	43	29	8,586	- 23.1	58	30	8,610	- 24.5	49
300	31	9,699	- 34.2		31	9,669	- 34.8		28	9,458	- 39.9		31	9,459	- 40.2		30	9,681	- 32.5	39	29	9,697	- 31.4	54	30	9,713	- 32.8	47
250	31	10,949	- 44.3		31	10,918	- 43.8		28	10,679	- 49.0		31	10,679	- 48.6		30	10,938	- 42.6		27	10,962	- 41.6		30	10,970	- 42.6	
200	31	12,407	- 55.9		31	12,385	- 55.5		28	12,122	- 54.1		31	12,128	- 53.0		30	12,403	- 54.7		25	12,439	- 53.9		29	12,440	- 54.7	
175	31	13,245	- 62.0		31	13,233	- 58.4		28	12,978	- 54.3		31	12,986	- 54.1		30	13,244	- 61.1		21	13,282	- 60.6		29	13,281	- 61.1	
150	31	14,185	- 67.5		31	14,190	- 63.4		28	13,963	- 55.5		30	13,974	- 55.5		29	14,186	- 67.3		17	14,230	- 67.2		27	14,226	- 67.1	
125	31	15,272	- 71.5		31	15,298	- 67.0		27	15,123	- 57.0		30	15,130	- 57.1		23	15,270	- 71.5		13	15,319	- 72.1		26	15,314	- 71.1	
100	31	16,583	- 75.0		31	16,641	- 67.0		27	16,534	- 56.6		30	16,538	- 57.6		19	16,580	- 73.3		10				20	16,635	- 69.5	
80	29	17,903	- 68.4		29	18,002	- 62.3		26	17,951	- 55.6		29	17,947	- 56.7		14	17,986	- 70.1		16				16	17,981	- 65.3	
60	27	19,655	- 62.4		26	19,796	- 57.7		24	19,793	- 53.0		24	19,782	- 53.0		14	19,615	- 64.1		11	19,744	- 61.3		11	19,744	- 61.3	
50	25	20,790	- 59.5		23	20,947	- 55.9		20	20,971	- 51.6		20	20,955	- 52.4		13	20,737	- 61.4		9	20,867	- 59.0		9	20,867	- 59.0	
40	21	22,198	- 57.4		22	22,372	- 53.6		20	22,421	- 50.2		16	22,405	- 50.5		13	22,126	- 59.2		8	22,281	- 55.5		8	22,281	- 55.5	
30	11	24,027	- 54.9		16	24,224	- 51.3		17	24,306	- 48.6		10	24,285	- 48.5		12	23,942	- 55.9		8	24,542	- 51.3		6	24,132	- 52.8	
15									7	26,981	- 46.4						5	28,433	- 47.3									

Standard pressure surface (mb.)	TATOOSH ISLAND, WASH. (1013 MB.)				VERA CRUZ, MEXICO (1011 MB.)				WASHINGTON, D. C. (1007 MB.)				*HAVANA, CUBA (1011 MB.)				**HAVANA, CUBA (1009 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	31	13.0	93	30	12	28.4	76	31	88	21.6	85	30	49	22.5	74	31	49	24.7	85
1,000	31	141	12.9	88	30	108	27.6	77	31	153	23.0	78	30	143	22.4	73	31	129	24.7	82
950	31	578	14.2	71	30	566	23.9	80	31	604	21.8	70	30	591	19.5	74	31	584	25.0	76
900	31	1,030	13.2	64	30	1,035	21.3	76	31	1,069	18.9	69	30	1,052	16.4	75	31	1,051	20.3	72
850	31	1,509	10.9	60	30	1,529	18.4	73	31	1,557	15.7	66	30	1,538	13.9	67	31	1,542	17.1	73
800	31	2,013	8.7	49	30	2,047	15.1	74	31	2,070	12.9	58	29	2,047	12.0	50	31	2,058	14.1	70
750	31	2,547	6.3	41	30	2,597	11.8	73	31	2,615	10.0	56	30	2,589	9.3	41	31	2,604	11.3	63
700	31	3,107	3.4	36	30	3,168	8.5	71	31	3,180	6.9	54	30	3,155	6.7	32	31	3,176	8.3	58
650	31	3,706	- 2.3	36	30	3,780	5.1	67	31	3,794	3.5	47	30	3,761	3.4	35	31	3,788	5.0	55
600	31	4,340	- 3.7	32	29	4,428	1.5	66	31	4,431	- .1	46	30	4,406	- .1	31	31	4,434	1.4	55
550	30	5,022	- 7.9	31	28	5,122	- 2.2	58	31	5,125	- 3.6	42	30	5,098	- 4.0	31	31	5,129	- 2.6	52
500	29	5,753	- 12.7	32	26	5,877	- 6.2	56	31	5,870	- 8.0	38	30	5,843	- 8.6		31	5,881	- 7.0	50
450	28	6,556	- 18.0		26	6,701	- 11.0	54	31	6,689	- 13.0	42	30	6,657	- 14.2		31	6,702	- 11.7	46
400	28	7,422	- 24.5		25	7,594	- 16.3	44	31	7,569	- 19.1	40	30	7,536	- 20.5	34	31	7,591	- 17.6	44
350	28	8,380	- 31.8		25	8,585	- 23.4	38	31	8,548	- 26.0	39	30	8,510	- 27.5		31	8,577	- 24.3	40
300	28	9,449	- 40.3		25	9,694	- 32.0		31	9,643	- 34.6	38	30	9,600	- 35.8		31	9,681	- 32.3	41
250	28	10,667	- 48.9		23	10,955	- 42.3		31	10,889	- 44.5		30	10,841	- 45.6		31	10,941	- 42.0	
200	28	12,111	- 54.2		20	12,425	- 55.0		30	12,346	- 55.2		30	12,294	- 55.3		31	12,415	- 53.7	
175	27	12,969	- 54.3		18	13,269	- 61.8		30	13,189	- 59.3		28	13,133	- 60.1		30	13,264	- 60.1	
150	27	13,954	- 55.2		16	14,207	- 68.3		29	14,145	- 63.1		22	14,094	- 63.8		26	14,216	- 66.9	
125	26	15,119	- 56.4		11	15,289	- 72.2		28	15,261	- 64.6		10	15,210	- 67.2		15	15,273	- 72.9	
100	26	16,532	- 57.0		7	16,598	- 74.4		27	16,624	- 62.9						9	16,563	- 72.9	
80	23	17,943	- 55.6		6	17,904	- 69.7		24	18,006	- 59.5						8	17,882	- 71.0	
60	20	19,785	- 53.5						20	19,819	- 55.9						8	19,615	- 63.1	
50	18	20,961	- 52.6						18	20,981	- 54.5						6	20,737	- 59.8	
40	16	22,415	- 50.8						17	22,413	- 52.2									
30	11	24,300	- 48.8						14	24,291	- 49.7									

\* April 1952  
\*\* May 1952



## Average monthly resultant winds

AUGUST 1952

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°; W = 270°); speeds in meters per second.



# RAWIN DATA

Average monthly resultant winds

Table 22

AUGUST 1952

Altitude (meters) m.s.l.	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Burrwood, La. (3 m.)			Caribou, Me. (191 m.)			Charleston, S.C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N.C. (275 m.)			Hatteras, N.C. (3 m.)			Int. Falls, Minn. (358 m.)			
	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			
	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed		
Surface	31	170	1.3	31	156	3.1	31	101	1.4	30	133	4.4	31	186	0.6	31	247	2.2	30	256	0.5	31	110	2.4	31	86	2.2	31	180	0.8	31	161	1.7	31	176	1.1	
500	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
1,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
1,500	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2,000	31	241	2.3	31	162	6.0	31	280	4.4	30	142	3.8	30	73	3.1	31	261	6.8	30	201	1.6	31	256	3.6	31	118	1.4	29	230	2.7	30	231	3.3	31	287	7.1	
2,500	31	246	2.2	31	159	4.9	31	281	5.8	30	129	3.2	30	65	3.1	31	260	7.1	30	198	1.9	31	264	4.5	31	150	4.2	29	241	2.7	31	244	4.1	31	288	7.8	
3,000	31	242	2.6	31	152	3.4	31	282	7.3	30	117	3.2	30	56	2.9	31	254	7.6	30	216	1.8	31	286	5.4	31	260	1.0	29	253	3.1	31	236	4.4	31	289	8.5	
4,000	31	251	2.7	30	66	1.5	31	283	10.4	29	95	3.1	30	33	2.1	31	251	9.5	29	239	2.1	31	294	7.2	31	278	5.0	29	266	3.9	30	249	4.7	31	287	10.2	
5,000	31	267	3.6	30	23	2.7	31	285	13.4	28	79	4.1	29	30	2.0	31	258	11.3	29	239	2.8	30	296	7.8	30	279	7.4	29	275	5.3	30	258	5.2	31	288	12.8	
6,000	30	268	3.6	30	18	1.8	31	282	14.9	28	83	3.9	29	26	2.2	30	254	12.4	28	257	3.2	25	293	9.1	27	273	9.2	29	276	6.8	28	267	5.5	31	292	14.0	
8,000	29	256	5.3	30	106	1.0	27	277	18.2	28	85	5.8	26	49	2.4	29	254	14.8	28	251	3.1	19	293	11.5	27	260	12.6	30	266	8.3	28	276	6.6	29	284	18.2	
10,000	27	246	6.4	30	90	1.4	20	272	24.9	27	86	5.9	27	70	3.1	23	256	13.5	27	286	3.9	19	289	16.8	27	253	17.2	30	268	11.9	26	280	9.7	26	274	22.5	
12,000	23	248	7.9	30	32	2.0	13	267	31.6	26	94	8.4	25	70	5.9	20	268	12.3	26	285	6.7	13	289	20.7	23	248	20.9	30	275	14.5	25	287	13.8	17	263	22.9	
14,000	22	241	5.8	30	51	6.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16,000	17	247	6.8	27	119	3.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
18,000	11	90	1.7	25	70	6.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
20,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
22,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
24,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Altitude (meters) m.s.l.	Little Rock, Ark. (80 m.)			Medford, Ore. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P.R. (38 m.)			St. Cloud, Minn. (316 m.)			Santa Maria Calif. (72 m.)			
	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			
	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed		
Surface	31	143	1.1	31	342	3.7	31	47	0.4	30	183	1.7	31	205	0.8	31	277	3.6	31	123	4.9	31	35	1.3	31	132	6.8	31	119	2.4	31	124	0.7	31	274	3.4	
500	31	165	3.7	31	340	4.3	31	131	2.5	29	257	3.3	31	169	2.0	31	277	4.8	30	135	6.2	---	---	---	31	148	9.8	31	91	6.3	31	163	1.8	31	329	2.9	
1,000	31	173	3.2	31	323	5.5	31	131	2.1	27	265	4.5	31	162	1.6	31	282	4.5	30	160	7.9	31	37	1.4	31	151	9.0	31	91	6.9	31	219	3.7	31	325	3.2	
1,500	31	174	1.9	31	310	4.1	31	118	1.7	27	259	5.2	31	164	6.3	31	267	2.6	30	183	7.0	31	75	1.1	31	147	4.4	30	94	7.1	31	264	4.3	31	21	1.1	
2,000	31	162	2.2	31	278	3.3	31	135	1.0	28	257	5.8	31	262	7.7	31	245	2.7	31	212	4.9	31	247	1.1	31	131	1.8	30	94	7.2	31	289	5.8	31	97	2.0	
2,500	31	1	1.3	31	240	4.1	31	106	9	28	252	6.9	31	283	1.0	31	231	3.0	31	244	4.5	31	254	3.2	31	93	2.4	31	91	6.9	31	293	6.9	31	163	1.3	
3,000	30	355	2.4	31	224	5.1	31	91	8	28	252	7.6	31	282	1.8	31	229	3.5	31	276	4.7	31	279	5.3	31	74	3.9	31	93	6.8	31	295	8.5	31	221	1.8	
4,000	30	347	5.1	31	231	5.8	31	104	6	26	266	8.5	31	292	4.5	31	230	4.4	31	319	6.2	31	279	9.9	31	66	5.2	30	89	6.1	31	290	11.0	30	211	3.6	
5,000	30	343	6.0	31	246	7.9	31	94	1.4	26	261	10.6	30	315	5.2	31	226	6.0	30	323	6.3	31	278	13.0	31	65	4.9	29	90	5.2	31	287	12.9	30	217	5.3	
6,000	30	333	6.6	29	250	10.4	31	85	2.2	24	269	10.8	30	305	6.5	31	230	6.6	31	314	6.7	31	275	13.8	30	75	4.9	30	94	4.9	31	286	15.4	31	213	5.9	
8,000	30	317	9.7	27	247	16.4	31	73	3.6	15	267	13.3	30	287	9.8	28	236	9.5	31	299	8.7	31	271	20.7	30	78	4.6	31	114	2.7	30	291	19.2	29	220	8.2	
10,000	30	312	10.1	23	246	16.9	31	60	4.8	13	278	15.7	29	285	10.7	22	321	14.1	30	305	10.6	29	269	25.5	30	80	7.0	30	115	1.3	23	279	23.1	31	229	13.3	
12,000	29	306	10.4	21	243	17.8	31	53	6.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
14,000	28	305	10.5	15	251	14.3	31	66	9.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
16,000	20	320	5.3	10	254	8.7	25	87	9.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
18,000	10	80	4.7	10	204	1.1	21	95	11.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
20,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
22,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
24,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Altitude (meters) m.s.l.	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Swan Island, W.I. (10 m.)			Tatoosh Island, Wash. (33 m.)			Washington, D.C. (88 m.)			
	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			
	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction	Speed	Direction	Direction
Surface	31	238	0.4	31	225	1.2	30	76	3.9	31	207	3.3	31	170	0.6	
500	31	252	2.6	---	---	---	30	86	8.4	31	267	3.6	30	208	2.7	
1,000	31	264	4.0	31	245	2.2	30	91	9.1	31	267	2.7	30	243	3.9	
1,500	30	280	4.4	31	250	3.2	29	94	9.0	31	253	1.4	30			



# SOLAR RADIATION DATA

Table 30--Solar radiation intensities, tabulated in langleys per minute.

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Sun's zenith distance										Vapor pressure, E.S.T.	
Date	A. M.				0.0°	P. M.				7.30 a. m.	1.30 p. m.
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°		
TABLE MOUNTAIN, CALIF.											
Air mass										Mb.	Mb.
3.76 3.01 2.26 1.51 *0.75 1.51 2.26 3.01 3.76											
gust				1.36							
				1.38							
	1.04	1.13	1.24	1.37							
				1.48							
				1.45							
				1.40							
				1.40							
				1.30							
				1.30							
				1.38							
	1.08	1.16	1.26	1.39							
				1.40							
				1.38							
				1.33							
				1.32							
er- ges par- ures	1.06	1.15	1.25	1.38							
	-.08	-.07	-.07	-.04							
LINCOLN, NEBR.											
Air mass										Mb.	Mb.
4.77 3.81 2.86 1.91 *0.95 1.91 2.86 3.81 4.77											
gust					1.30	1.06	0.92	0.77	0.67		
					1.27	.97	.75				
					1.24	.88	.82	.67			
					1.18	.90	.73	.58	.48		
					1.15	.94	.77	.67	.58		
er- ges par- ures					1.23	.95	.80	.67	.58		
					-.07	-.10	-.06	-.06	-.04		
MADISON, WIS.											
Air mass										Mb.	Mb.
4.81 3.84 2.88 1.92 *0.96 1.92 2.88 3.84 4.81											
gust	0.52	0.61	0.75	0.92	1.23						
	.65	.70	.84	.91	1.21						
	.63	.71	.84	.99	1.22						
	.74	.83	.95	1.13	1.30						
	.34	.40	.54								
	.68	.80	.94	1.11	1.15						
	.65	.79	.92	1.10	1.33						
	.81	.92	1.06	1.18	1.36						
	.74	.83	.95	1.06	1.32						
	.63	.74	.87	1.02	1.22						
er- ges par- ures	.64	.73	.87	1.05	1.26						
	.00	-.01	.00	.00	-.04						
* Extrapolated											

\* Extrapolated

Date	Sun's zenith distance								Vapor pressure, E. S. T.		
	A. M.				00°	P. M.				7.30 a. m.	1.30 p. m.
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°		
BLUE HILL, MASS.											
Air mass											
	4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
August 9	---	---	---	---	---	1.16	1.10	1.03	1.00	Mb. Mb.	
14	0.95	1.01	1.08	1.20	---	---	---	---	---		
15	.89	.96	1.04	1.18	---	---	---	---	---		
17	1.00	1.07	1.17	1.30	---	---	---	---	---		
19	1.05	1.11	1.20	1.28	---	1.26	1.16	1.07	1.04		
20	.93	1.00	1.08	1.21	---	---	---	---	---		
23	1.09	1.16	1.26	1.38	---	---	---	1.17	1.11		
24	1.16	1.21	1.30	1.42	---	1.38	1.29	1.24	1.18		
25	---	1.12	1.21	1.34	---	1.33	1.24	1.14	1.11		
26	.86	.95	1.03	1.18	---	1.18	1.08	1.02	.94		
27	.81	.89	.98	---	---	---	---	---	---		
Average Departures	.97	1.05	1.14	1.28	---	1.26	1.17	1.11	1.06		
	+ .31	+ .27	+ .25	+ .23	---	+ .23	+ .31	+ .39	+ .44		
BOSTON, MASS.											
Air mass											
	4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96		
										Mb. Mb.	
NO DATA DURING AUGUST 1952											
ALBUQUERQUE, N. M.											
Air mass											
	4.08	3.26	2.44	1.63	*0.815	1.63	2.44	3.26	4.08		
										Mb. Mb.	
NO DATA DURING AUGUST 1952											
TACUBAYA, D. F., MEXICO											
Air mass											
	3.83	3.07	2.31	1.53	*0.77	1.53	2.31	3.07	3.83		
										Mb. Mb.	
NO DATA DURING AUGUST 1952											

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface.  
An explanation of Tables 30 and 31 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given

in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.



# SOLAR RADIATION DATA

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Table 31a.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

Date-----	30	31	1	2	3	4	5	Aver-	6	7	8	9	10	11	12	Aver-	13	14	15	16	17	18	19	Aver-
Langleys-----	290	280	281	92	275	300	90	age	59	232	93	258	---	251	164	age	210	298	296	71	---	281	305	age
								290								158								245
Date-----	20	21	22	23	24	25	26	Aver-	27	28	29	30	31	1	2	Aver-								
Langleys-----	310	226	163	336	343	301	321	age	295	214	251	64	249	77	324	age								
								286								211								

Table 31b.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during the month

Date-----	30	31	1	2	3	4	5	Aver-	6	7	8	9	10	11	12	Aver-	13	14	15	16	17	18	19	Aver-
Langleys-----	150	125	127	93	114	136	67	age	48	120	108	122	---	124	119	age	123	113	109	81	---	110	100	age
								116								100								107
Date-----	20	21	22	23	24	25	26	Aver-	27	28	29	30	31	1	2	Aver-								
Langleys-----	118	114	99	106	101	96	91	age	95	117	106	84	121	76	90	age								
								104								99								

Table 31c.-Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

Date-----	30	31	1	2	3	4	5	Aver-	6	7	8	9	10	11	12	Aver-	13	14	15	16	17	18	19	Aver-
Langleys-----	206	209	217	130	149	199	115	age	69	234	176	118	---	235	234	age	228	127	92	136	---	107	229	age
								175								167								152
Date-----	20	21	22	23	24	25	26	Aver-	27	28	29	30	31	1	2	Aver-								
Langleys-----	---	180	155	66	---	93	126	age	158	227	207	111	204	125	106	age								
								135								167								

Note.—Langley is the unit used to denote one gram calorie per square centimeter



# SOLAR RADIATION DATA

Table 33.—Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in Langley's.

AUGUST 1952

1952	Albuquerque, N.Mex.	Alachua, Fla.	Atlanta, Ga.	Barrow, Alaska	Bothel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Caribou, Me.	Canton Island	Charleston, S.C.	Cleveland, Ohio	Columbia, Mo.	Columbus, Ohio	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	E. Wareham, Mass.	Edmonton, Alberta	El Paso, Tex.	Ely, Nevada	Fairbanks, Alaska	Ft. Worth, Tex.	Fresno, Calif.	Glasgow, Mont.	Grand Junction, Colo.	Grand Lake, Colo.	Great Falls, Mont.	Greensboro, N.C.	Gritfin, Ga.	Hatteras, N.C.	Indianapolis, Ind.	Inyokern, Calif.	Itasca, N.Y.	Lake Charles, La.	Lander, Wyo.															
July 30-----	485	633	479	333	237	(671)	562	566	598	781	745	---	707	707	662	538	291	760	378	575	704	647	487	311	(756)	496	772	494	---	808	484	621	647	535	---	---	---	---	---	---													
July 31-----	338	681	578	431	175	709	485	529	486	397	522	621	709	651	704	753	647	709	654	411	693	523	582	467	706	657	762	541	---	784	446	298	756	682	---	---	---	---	---	---													
August 1-----	465	728	189	343	394	569	586	596	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586												
August 2-----	478	728	189	343	394	569	586	596	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586												
August 3-----	478	728	189	343	394	569	586	596	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586												
August 4-----	478	728	189	343	394	569	586	596	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586												
August 5-----	439	702	664	619	575	283	---	527	617	583	470	502	692	282	697	339	669	617	575	583	389	642	542	514	(607)	675	760	589	---	552	619	509	686	450	---	---	---	---	---	---	---												
Averages-----	381	684	535	446	398	210	(561)	414	613	453	627	537	(520)	528	597	462	620	602	412	453	566	670	657	420	(689)	639	668	642	---	663	464	475	655	583	---	---	---	---	---	---	---												
Departures-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---											
August 6-----	579	624	487	374	495	183	664	78	423	70	734	587	648	436	---	471	565	641	391	78	646	733	365	486	611	645	733	553	---	556	286	---	---	---	---	---	---	---	---	---	---												
August 7-----	394	714	455	476	584	199	510	212	663	248	712	655	662	497	---	341	661	689	684	444	191	628	712	(725)	466	611	685	773	487	---	469	325	---	---	---	---	---	---	---	---	---	---											
August 8-----	406	527	603	307	342	230	633	505	687	583	687	688	610	585	---	703	261	678	713	210	350	584	551	(645)	428	689	695	683	554	---	435	278	---	---	---	---	---	---	---	---	---	---											
August 9-----	390	603	382	353	261	162	602	---	667	75	725	417	---	586	---	---	496	668	679	458	170	598	487	724	405	594	706	531	596	---	478	202	---	---	---	---	---	---	---	---	---	---	---										
August 10-----	153	626	336	625	173	169	679	481	688	487	741	433	670	372	---	280	438	666	361	167	457	528	678	741	333	717	706	755	723	---	608	656	700	---	---	---	---	---	---	---	---	---	---										
August 11-----	73	666	418	---	200	363	681	323	667	274	619	396	647	471	---	474	266	630	659	373	698	755	256	736	717	606	685	680	---	580	709	487	---	---	---	---	---	---	---	---	---	---	---										
August 12-----	340	630	395	396	365	221	568	395	651	297	707	546	640	513	---	508	437	651	637	359	269	589	653	(643)	365	641	688	634	649	---	471	552	467	---	---	---	---	---	---	---	---	---	---										
Averages-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---									
Departures-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---									
August 13-----	242	482	602	---	141	113	586	390	618	405	716	648	629	483	---	557	631	650	696	470	401	458	638	729	297	738	680	688	318	---	531	717	596	---	---	---	---	---	---	---	---	---	---										
August 14-----	202	602	548	---	272	204	586	540	659	572	740	600	---	505	---	504	381	633	680	495	---	410	550	729	195	744	676	614	668	518	---	492	558	---	---	---	---	---	---	---	---	---	---	---									
August 15-----	106	692	247	---	273	451	548	578	682	582	712	567	407	574	---	150	324	644	716	225	543	---	410	706	732	357	739	671	536	717	---	683	682	---	---	---	---	---	---	---	---	---	---	---									
August 16-----	197	669	330	640	334	192	653	171	655	224	703	551	587	---	---	602	643	638	695	300	260	398	707	730	337	727	668	651	709	---	640	599	441	---	---	---	---	---	---	---	---	---	---	---	---								
August 17-----	441	593	439	632	194	77	499	---	681	452	689	96	(625)	579	---	448	655	638	695	433	485	632	612	696	713	537	737	673	203	288	---	456	741	642	---	---	---	---	---	---	---	---	---	---	---								
August 18-----	433	665	542	---	242	148	508	576	671	587	705	696	639	621	---	569	303	629	274	373	581	544	672	622	---	728	665	612	696	---	705	657	667	---	---	---	---	---	---	---	---	---	---	---	---								
August 19-----	197	590	387	---	180	210	592	---	678	592	---	---	---	---	---	594	629	623	622	466	---	524	714	599	431	---	665	682	375	446	---	713	285	---	---	---	---	---	---	---	---	---	---	---	---	---							
Averages-----	260	613	442	---	224	199	567	479	663	488	710	546	(577)	560	---	489	484	636	588	402	446	482	669	692	337	735	672	641	539	---	568	657	545	---	---	---	---	---	---	---	---	---	---	---	---	---							
Departures-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
August 20-----	174	621	266	---	486	471	596	436	582	439	565	507	637	606	---	603	593	604	516	236	---	511	693	587	463	(669)	643	632	354	270	---	695	537	---	---	---	---	---	---	---	---	---	---	---	---	---	---						
August 21-----	300	656	535	---	465	354	590	436	582	439	565	507	637	606	---	603	593	604	516	236	---	511	693	587	463	(669)	643	632	354	270	---	695	537	---	---	---	---	---	---	---	---	---	---	---	---	---	---						
August 22-----	247	627	552	---	353	309	515	612	300	632	338	717	135	---	---	669	545	583	261	492	307	381	702	538	477	(616)	649	586	677	445	---	694	374	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---					
August 23-----	129	627	416	---	330	627	416	---	330	627	416	---	330	627	416	---	330	627	416	---	330	627	416	---	330	627	416	---	330	627	416	---	330	627	416	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
August 24-----	385	642	548	---	253	343	463	594	672	583	576	653	612	685	---	476	590	598	651	500	567	505	707	700	232	654	644	585	518	---	512	570	759	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
August 25-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
August 26-----	220	---	658	---	222	257	539	575	520	550	588	581	618	631	---	529	596	625	679	478	537	481	680	(631)	---	651	642	539	443	---	507	399	753	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
Averages-----	234	629	455	---	305	377	570	533	632	531	635	458	588	510	---	557	563	607	431	446	509	479	689	(636)	307	(656)	639	616	---	425	618	537	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
Departures-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
August 27-----	408	591	685	542	448	132	---	488	579	473	665	579	595	261	---	615	593	611	421	474	465	469	604	643	---	(661)	654	600	476	---	431	634	476	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
August 28-----	110	664	359	117	198	278	493	400	586</																																												







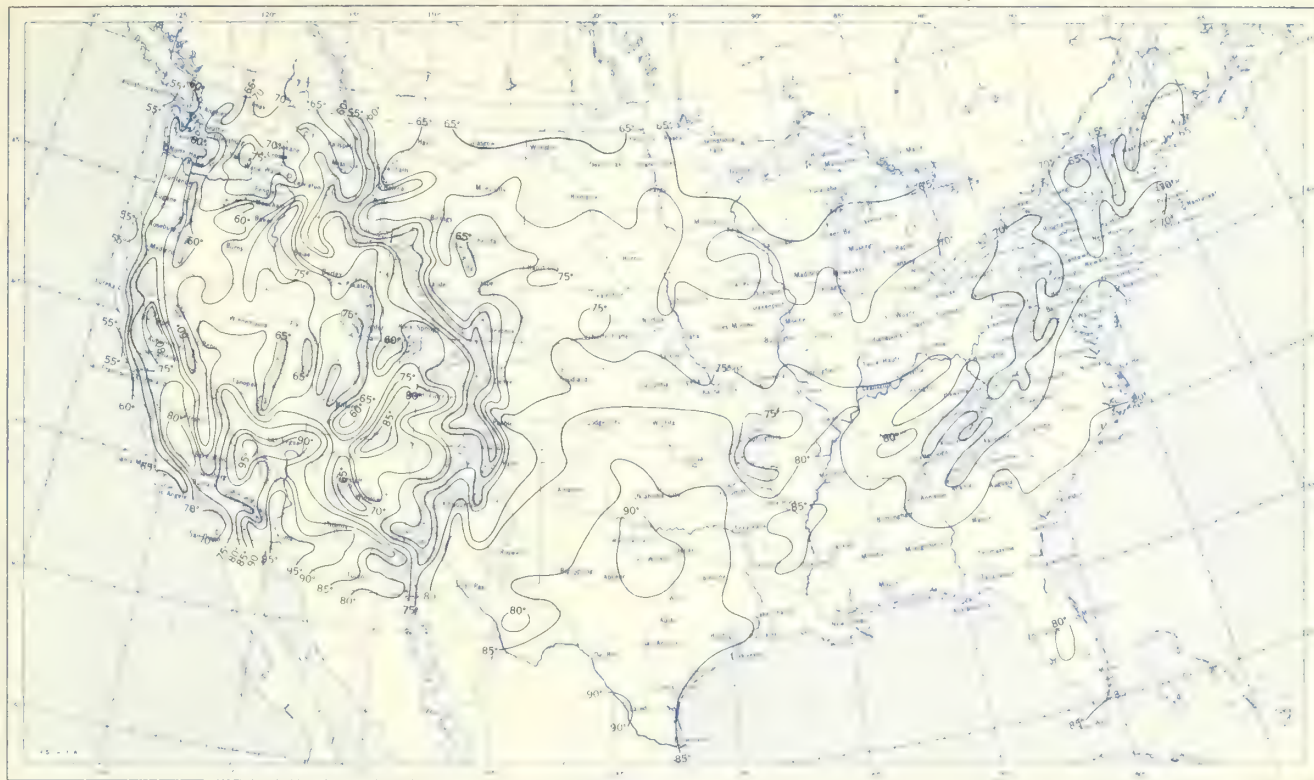




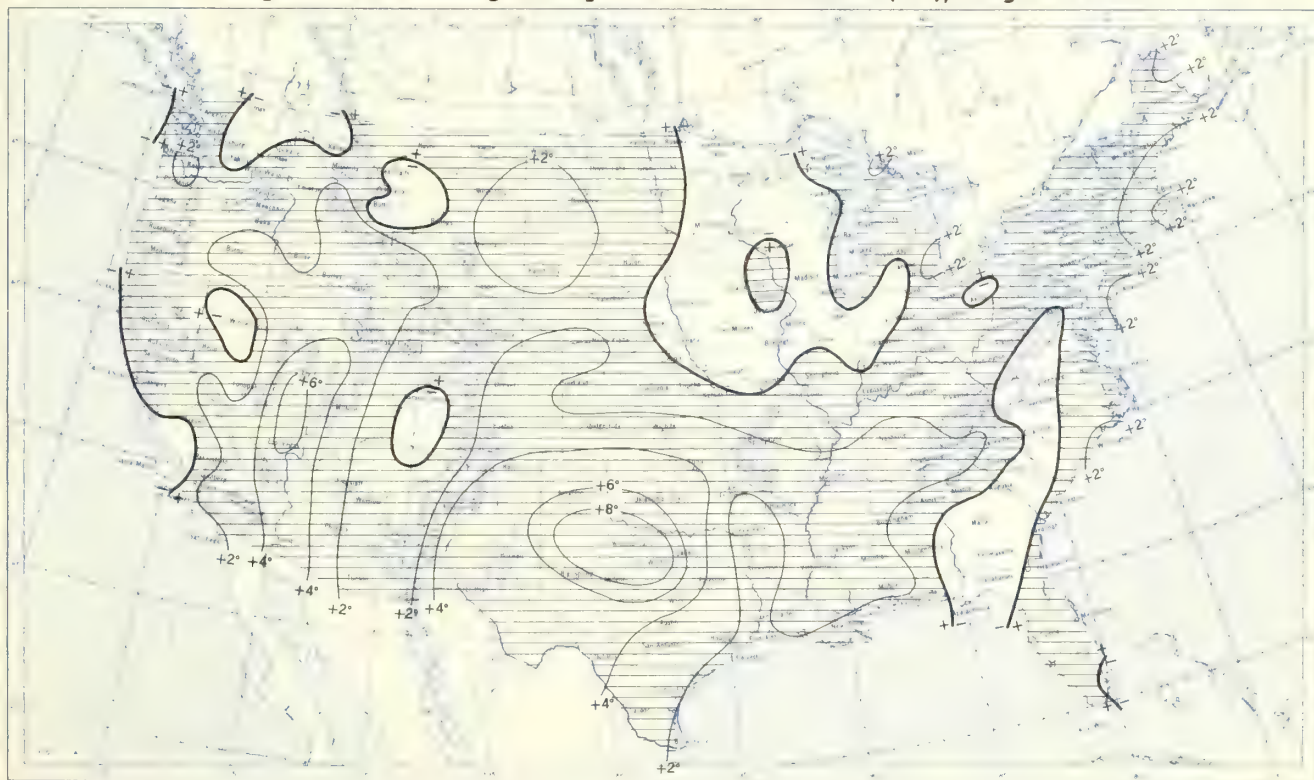




**Chart I. A. Average Temperature (°F.) at Surface, August 1952.**



**B. Departure of Average Temperature from Normal (°F.), August 1952.**



A. Based on reports from 800 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Normal average monthly temperatures are computed for Weather Bureau stations having at least 10 years of record.



Chart II. Total Precipitation (Inches), August 1952.



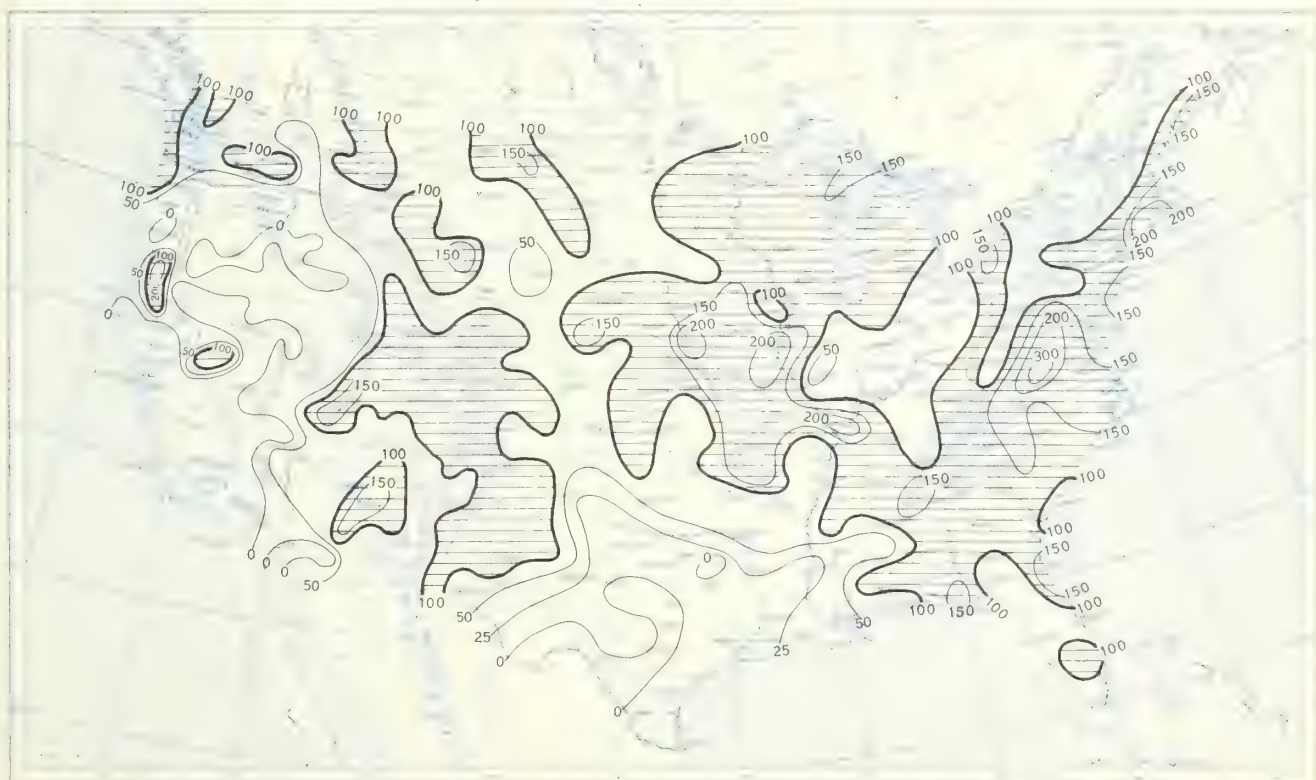
Based on daily precipitation records at 800 Weather Bureau and cooperative stations.



Chart III. A. Departure of Precipitation from Normal (Inches), August 1952.



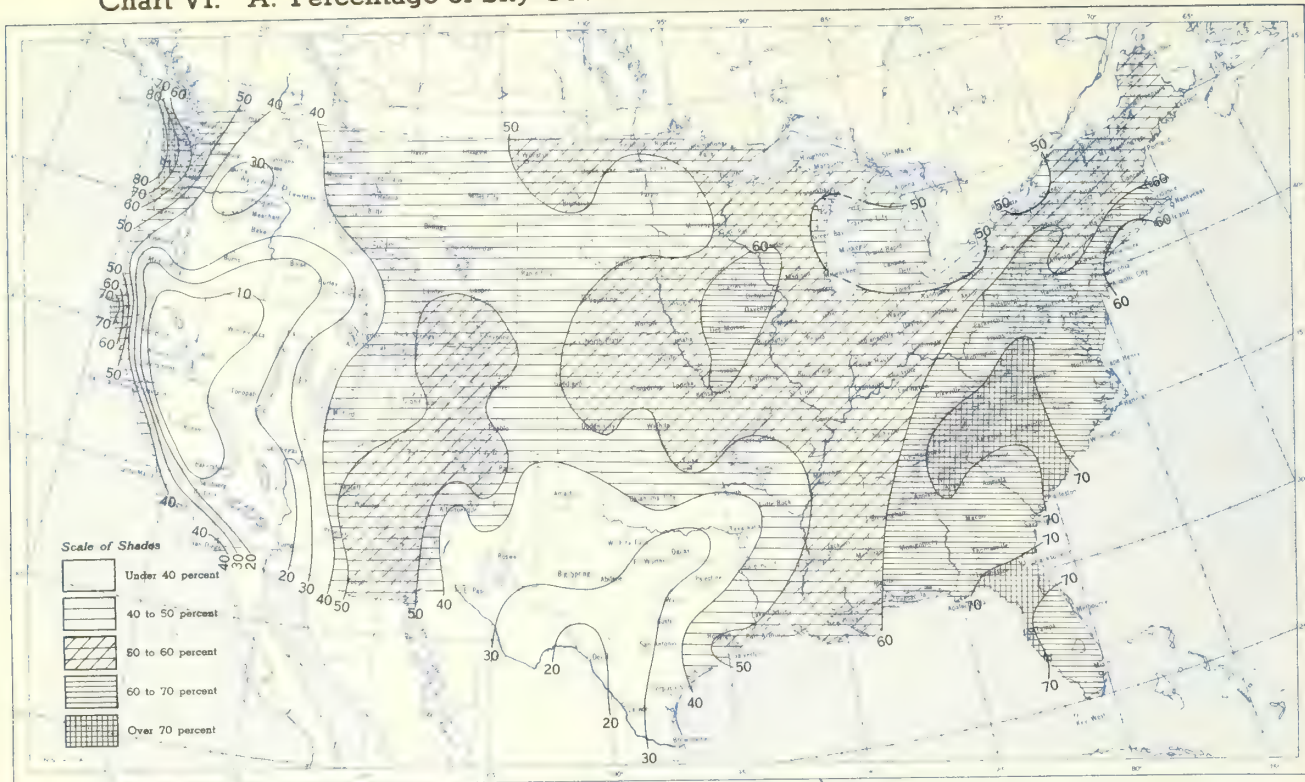
B. Percentage of Normal Precipitation, August 1952.



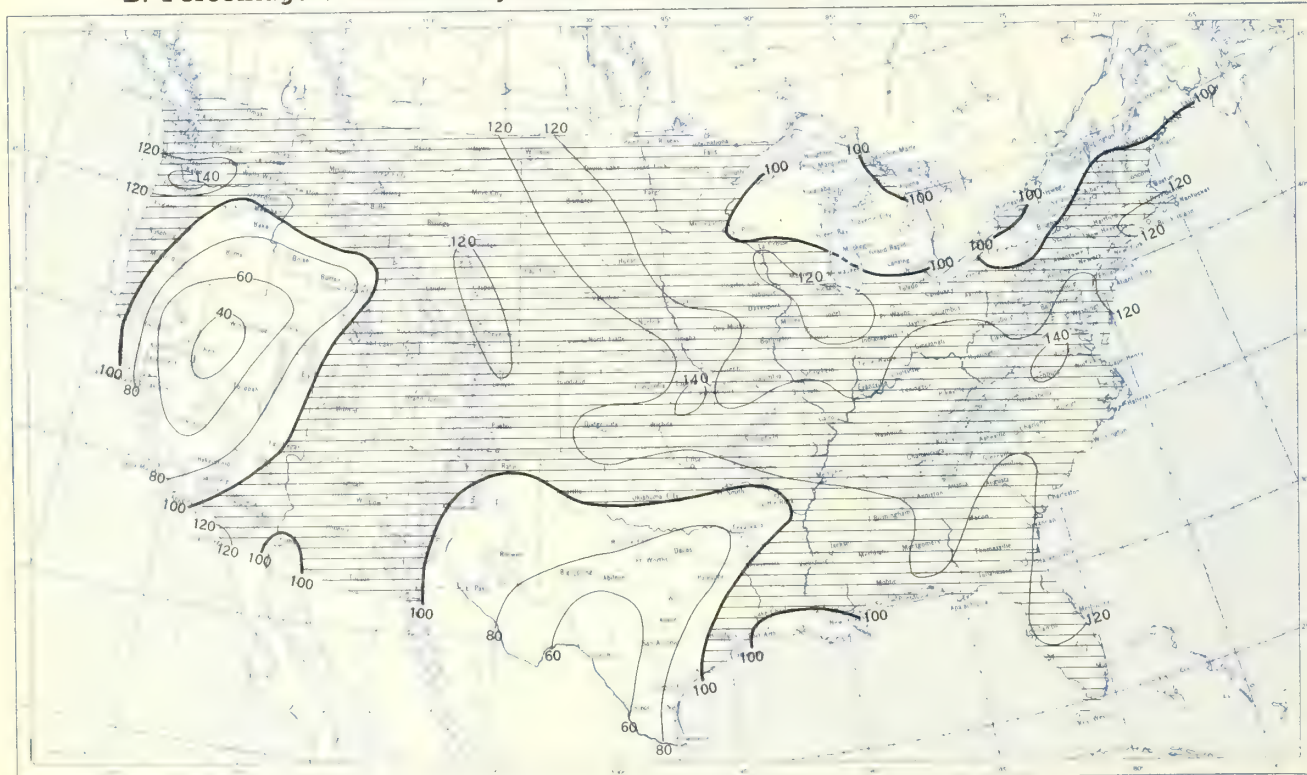
Normal monthly precipitation amounts are computed for stations having at least 10 years of record.



Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, August 1952.



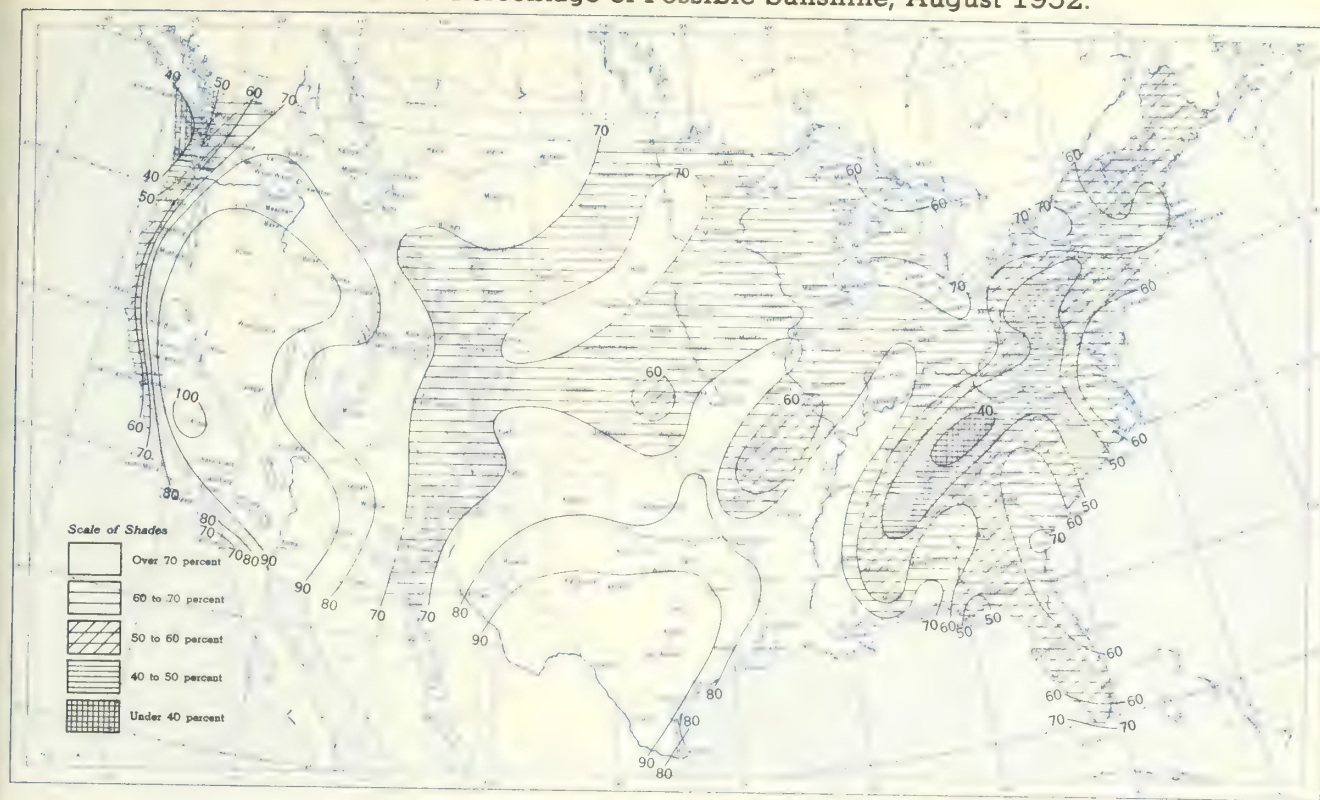
B. Percentage of Normal Sky Cover Between Sunrise and Sunset, August 1952.



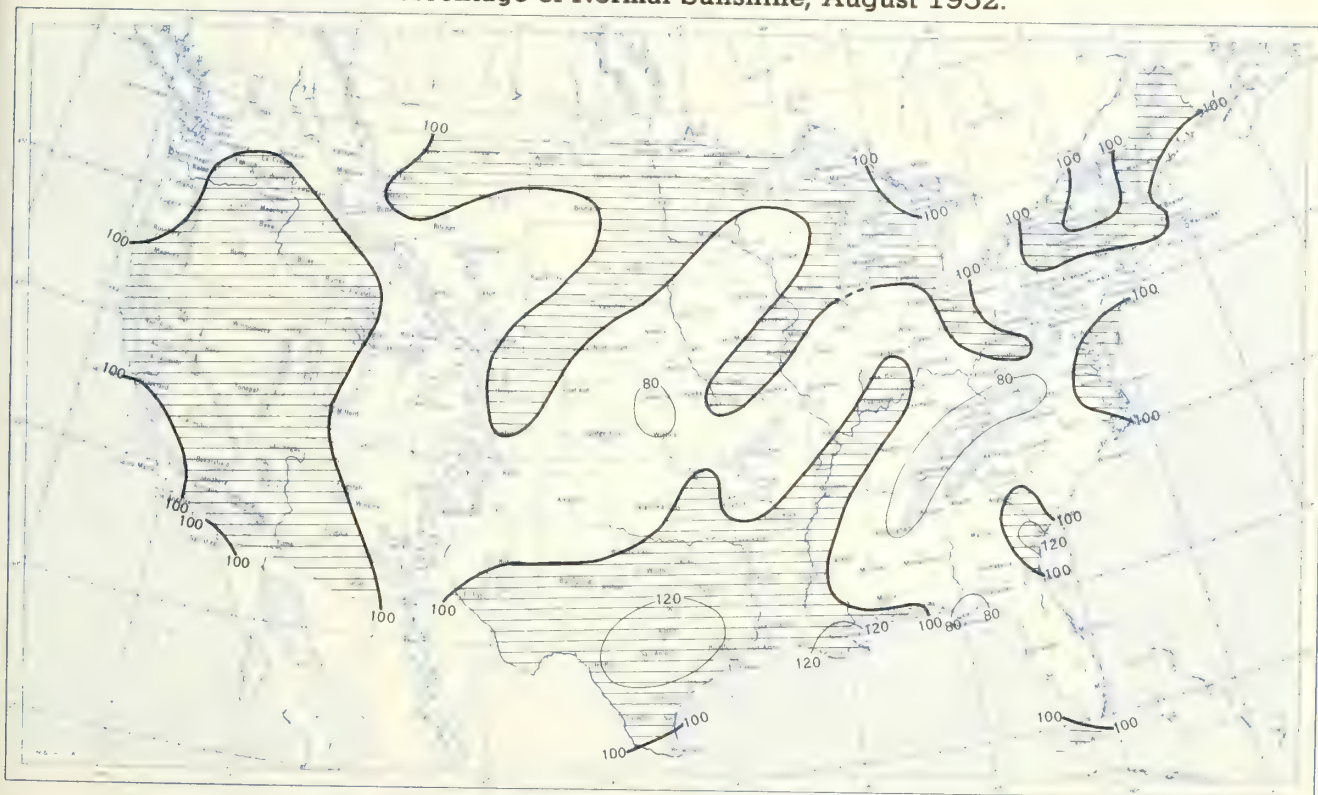
A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.



Chart VII. A. Percentage of Possible Sunshine, August 1952.



B. Percentage of Normal Sunshine, August 1952.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.



Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, August 1952. Inset: Percentage of Normal Average Daily Solar Radiation, August 1952.



Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm.<sup>-2</sup>). Basic data for isolines



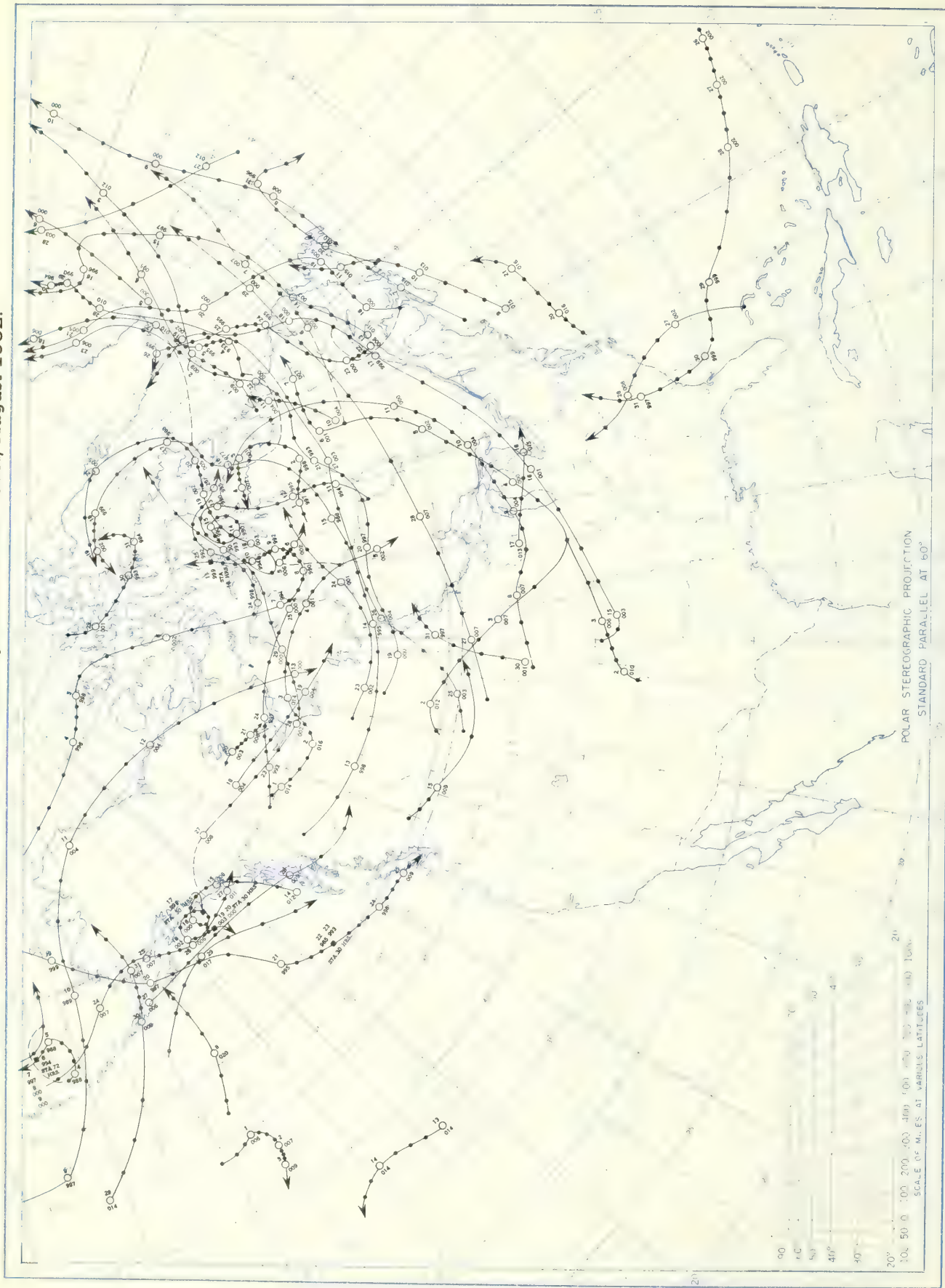
Chart IX. Tracks of Centers of Anticyclones at Sea Level, August 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



Chart X. Tracks of Centers of Cyclones at Sea Level, August 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. See Chart IX for explanation of symbols.



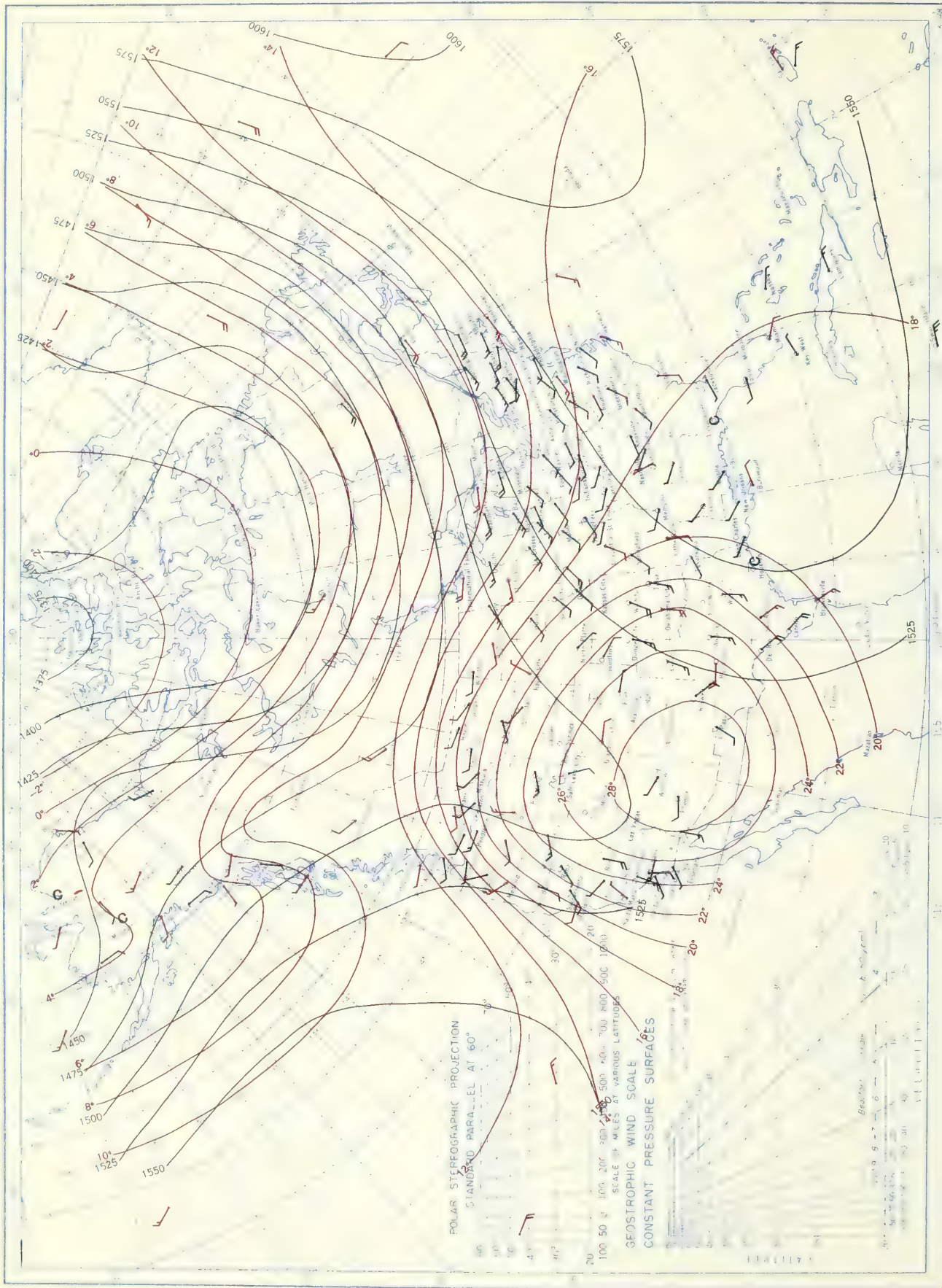
• 444 •



Average sea level pressures are obtained from the averages of the 7:30 a. m. and 7:30 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.



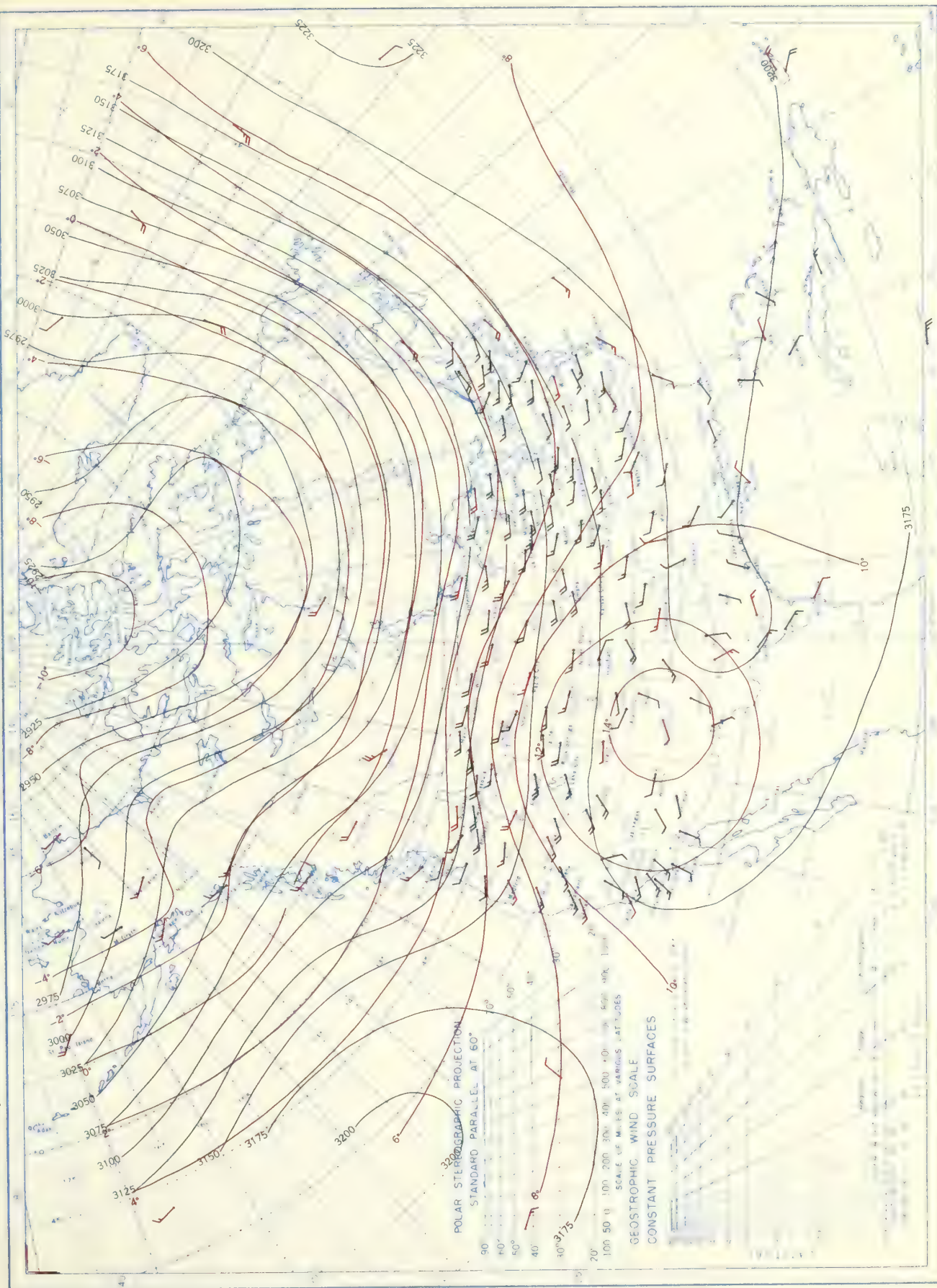
Chart XII. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 850-mb. Pressure Surface, Average Temperature in °C. at 850 mb., and Resultant Winds at 1500 Meters (m.s.l.), August 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; winds shown in red are based on pilot balloon observations at 0300 G. M. T. and Resultant Winds at 3000 Meters (m.s.l.), August 1952.



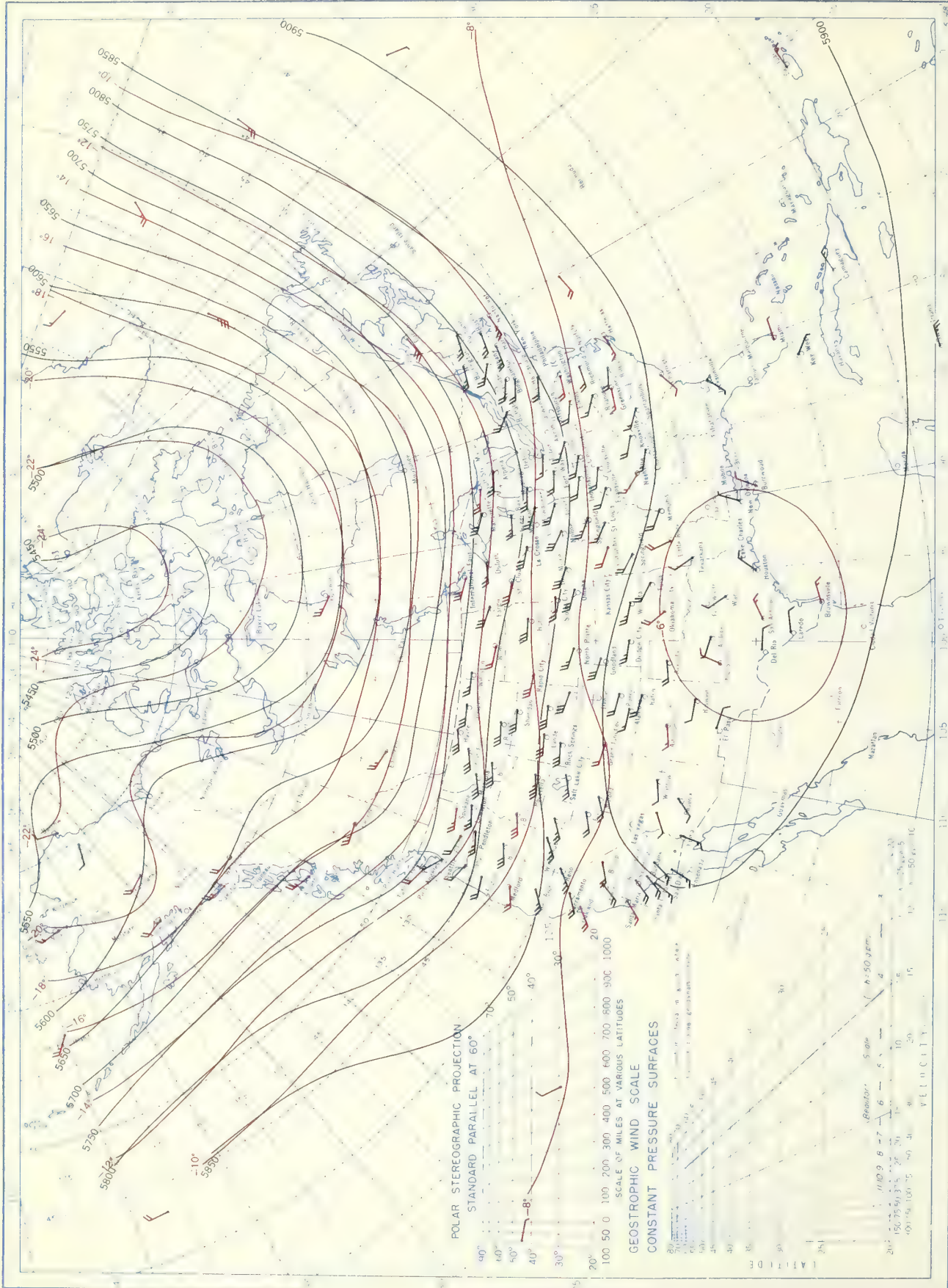
Surface, Average Temperature in °C. at 700 mb., and Resultant Winds at 3000 Meters (m.s.l.), August 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0300 G. M. T.



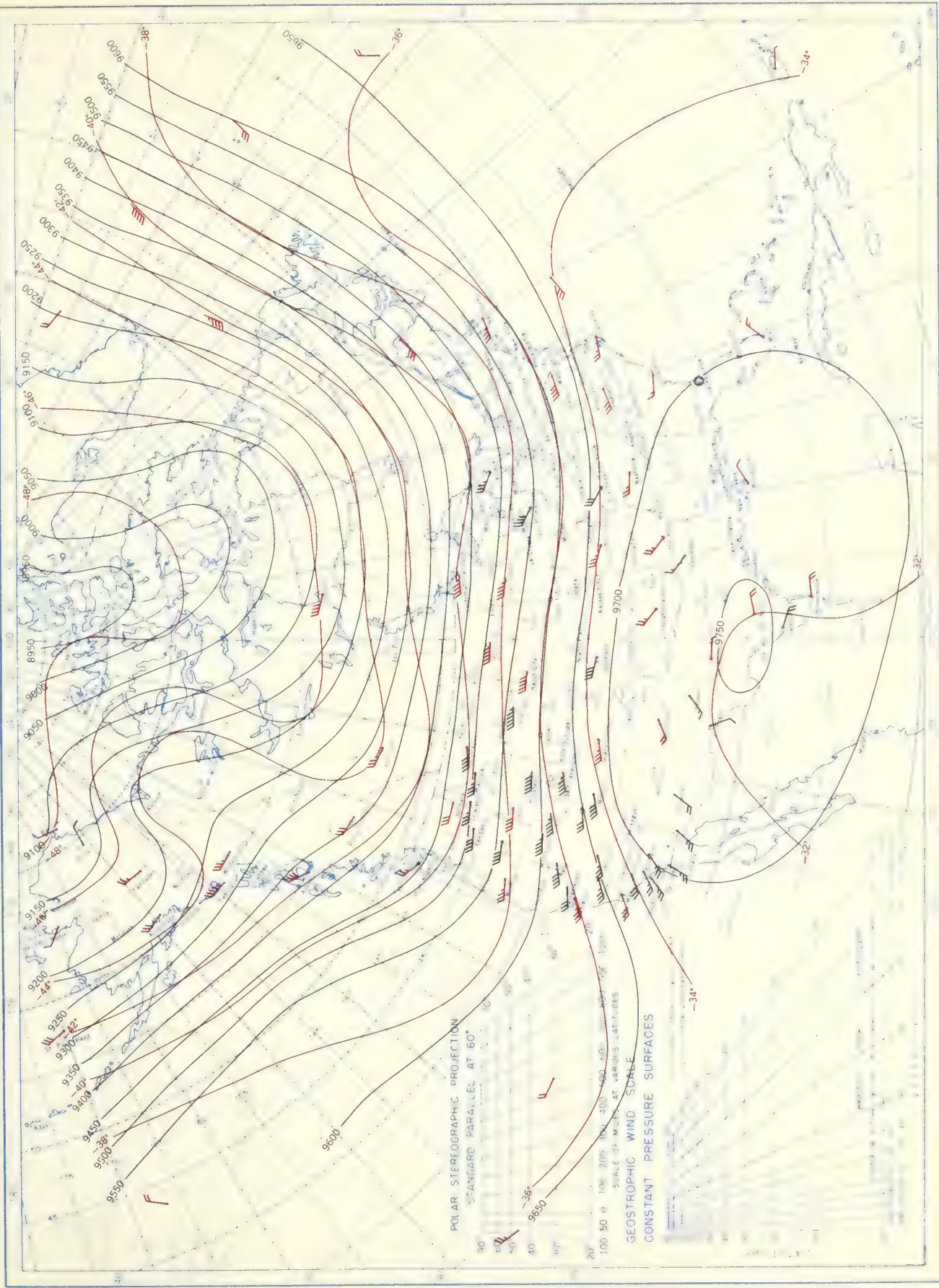
Chart XIV. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 500-mb. Pressure Surface, Average Temperature in °C. at 500 mb., and Resultant Winds at 5000 Meters (m.s.l.), August 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawinsonde observations at 0200 G. M. T.



Surface, Average Temperature in °C. at 300 mb., and Resultant Winds at 10,000 Meters (m.s.l.), August 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T.



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U. S. DEPARTMENT OF COMMERCE  
CHARLES SAWYER, Secretary  
WEATHER BUREAU  
F. W. REICHELDERFER, Chief

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

SEPTEMBER 1952

Volume 3 No. 9





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NOTE:--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

Volume 3 No. 9

SEPTEMBER 1952

### GENERAL SUMMARY OF WEATHER CONDITIONS

Mostly abnormally warm, dry, sunny weather during September favored outside activities and the maturity of crops, but resulted in an increase of droughty conditions. This was the driest September since 1899, and coming at the end of an extremely dry summer created a need for moisture that was almost Nation-wide. This need was most urgent in the lower Great Plains and some adjacent States that had been plagued by severe drought during July and August. Reflecting the prolonged drought in this area, streams were low or dried up, many wells failed, pastures and ranges were dry, and growth of winter grains was at a standstill. Nation-wide temperature averages remained above normal for the fifth consecutive month.

**PRECIPITATION.**—Rainfall was below normal throughout the country, except in small scattered areas east of the Mississippi River, along the Gulf Coast, and in the far Southwest. Deficiencies were greatest in the central interior and the Northwest where precipitation was generally less than one-half of the usual amounts for September, and monthly totals, with few exceptions, were less than one-half inch. The State-wide average precipitation for both Wisconsin and Minnesota was the lowest on record.

The principal sections that received moderate to heavy rains during the month were the south Atlantic and Gulf coastal areas, Florida, the north-central Appalachian region, central and southeastern Texas, and north-central Arizona. Heavy rains fell along the central and north Atlantic Coast on the 1st during the passage of a tropical storm that had moved inland over the Carolinas at the end of August. Rainfall during this storm totaled up to 7 inches in eastern Pennsylvania. The heaviest rainfall of the month, which occurred in south-central Texas on the 10th and 11th, ranged up to 10.70 inches in 24 hours at Hye and caused record-breaking floods in some smaller streams. Moderate to heavy rains fell in the Southeast on the 11th and 12th when a tropical storm moved inland, and in the Lake Region and Northeast and many sections between the Ohio River and the Gulf during the passage of a cold front on the 14th and 15th. Steady rains in north-central Arizona from the 20th to the 23d produced near record monthly totals at some stations; Tuba City received the greatest amount, 3.94 inches.

Snowfall was mainly limited to occasional flurries or very light amounts in the western mountains. The only snowstorm of note occurred in the Sierra Nevada Mountains on the 10th and 11th.

Three inches of snow that was measured at Norden, Calif., on the 11th was reported to be the earliest snowfall there since the beginning of records in 1898. Near Donner Summit the snow interrupted traffic for several hours.

**TEMPERATURE.**—Above normal temperatures prevailed generally over the United States, except from the Ohio River to the Gulf, and in the lower Mississippi Valley and portions of southern Texas. Monthly averages ranged up to the low 90's and highest temperatures up to 118° in Death Valley, California. The highest temperatures of the month at stations west of the Great Plains and in the South generally occurred during the first week, except during the fourth week in the extreme Northwest and along the Canadian Border; in the northern Great Plains, the Great Lakes Region, and the Northeast from the 10th to the 14th; and in the central Great Plains during one of the warm periods that occurred on the 4th and 5th, 16th to the 19th, and from the 28th to the 30th.

Minimum temperatures in the far West were recorded at most stations from the 12th to 14th, and elsewhere during the fourth week. Freezing temperatures were limited to extreme northern areas and higher elevations in the far West, and caused only slight damage. The lowest temperature of the month, 10°, was recorded at Bondurant, Wyo., on the 14th.

**DESTRUCTIVE STORMS.**—During September storms were relatively infrequent, and the total damage and number of fatalities were less than usual. The most damage by a single storm was caused by severe winds at the Carswell Air Force Base in Tarrant County, Texas, during the passage of a cold front on the 1st. At Carswell Field winds of 90 m.p.h. were indicated on the anemometer before it was destroyed by flying debris. Damage to 35 large planes, to buildings and installations totaled several million dollars, and in addition, 1 person was killed and 14 injured. Winds along this cold front caused over \$500,000 damage in Kentucky and small losses in several other scattered localities of the Great Plains and Midwest. Winds and rain, accompanying a weakened hurricane during its passage over the central-Atlantic Coastal States on the 1st, caused damage estimated at about \$1,000,000. Storms that occurred in widely scattered localities of the eastern half of the Nation during the passage of a cold front from the 17th to 20th, caused damage totaling over \$1,000,000. A whirlwind that developed unusual force damaged two barns northeast of Binger, Okla., on the 18th.



# CONDENSED CLIMATOLOGICAL SUMMARY

Table 1

SEPTEMBER 1952

Section	Temperature								Precipitation							
	Average	Departure from normal	Monthly extremes						Average	Departure from normal	Monthly extremes					
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least		
	*F.	*F.		*F.			*F.		In.	In.		In.		In.		
Alabama	72.7	-2.8	3 Stations	97	*1	Valley Head	42	24	3.27	-0.09	Bay Minette	12.25	New Market	0.46		
Arizona	74.3	+1.6	2 Stations	116	*3	Alpine	17	13	1.16	-.23	Mormon Lake RS	3.99	2 Stations	.00		
Arkansas	71.7	-2.4	Booneville	104	1	Harrison	34	24	2.04	-1.28	Helena	5.73	Hope	.00		
California	71.8	+2.3	3 Stations	118	*1	2 Stations	22	*10	.36	-.04	Big Bear Lake Dam	2.78	75 Stations	.00		
Colorado	60.3	+1.9	Fort Lupton	103	4	Fraser	14	*22	.89	-.50	Cimarron 3SE	4.70	Spicer 2NE	T		
Connecticut	63.3	+7	Greenwich	94	13	Putnam	33	28	3.41	-.44	Norfolk 2SW	5.99	New London	1.34		
Delaware	67.7	-.8	3 Stations	96	13	Georgetown	37	28	2.69	-.74	Newark College Farm	4.05	Georgetown	1.26		
Florida	79.5	+1	do	98	*2	Milton Exp. Sta.	55	4	6.42	-.39	Daytona Beach	16.38	Winter Haven	1.96		
Georgia	73.5	-2.2	Brunswick	98	2	Blairsville Exp. Sta.	40	27	3.43	-.40	Griffin	7.01	Elberton	.01		
Idaho	60.6	+3.3	2 Stations	100	3	3 Stations	15	14	.27	-.72	2 Stations	1.23	12 Stations	.00		
Illinois	66.8	-.9	Palestine	100	1	Sycamore	32	24	1.95	-1.69	Warsaw	5.44	3 Stations	.47		
Indiana	65.7	-1.6	4 Stations	98	*1	Wheatfield	31	27	3.42	+.14	Pendleton Reformatory	7.42	South Bend WB AP	.71		
Iowa	64.9	+5	Ankeny 2SW	97	5	Sibley	26	23	.88	-3.13	Keokuk L & D 19	4.05	Boone	.07		
Kansas	71.0	+1.0	Hays 1S	104	17	Atwood	33	22	.61	-2.32	Troy	3.97	4 Stations	.00		
Kentucky	67.9	-2.3	2 Stations	98	*1	Grayson	33	24	2.42	-.50	Murray	6.56	Paintsville	.67		
Kentiana	75.8	-2.1	Natchitoches	101	16	Logansport	40	27	2.37	-1.55	Houma 1	8.21	Angola	.00		
Maine	58.7	+9	4 Stations	87	*2	4 Stations	27	*8	3.03	-.54	Hiram 2S	4.78	Eastport WB City	1.71		
Maryland	67.1	-.5	Western Port	99	13	Oakland	30	24	4.11	+.71	Edgemont	8.84	Salisbury CAA AP	1.19		
Massachusetts	63.0	+9	2 Stations	92	*12	Walpole 1S	28	28	2.70	-.97	Peru	6.33	Nantucket WB AP	.73		
Michigan	60.8	+8	do	98	*12	Watersmeet	22	24	1.69	-1.61	Hulbert 2S	3.93	Grand Ledge	.37		
Minnesota	60.3	+1.8	4 Stations	97	*4	Angus 1NE	26	*20	.57	-2.25	Orr Ranger Station	1.83	St. Cloud WB AP	.07		
Mississippi	73.7	-2.1	2 Stations	101	*1	Charleston	41	26	2.36	-.77	Biloxi City	7.83	Port Gibson	.44		
Missouri	68.2	-1.1	3 Stations	98	*16	2 Stations	30	*22	1.67	-2.33	Doniphan 2W	5.10	Auxvasse	.00		
Montana	59.2	+3.2	Miles City	100	9	Wisdom	13	14	.53	-.75	Bozeman 12NE	2.48	2 Stations	.00		
Nebraska	67.0	+2.6	Cambridge	105	16	Merriman	26	22	.64	-1.46	Oshkosh 8SW	1.87	do	.00		
Nevada	64.9	+2.1	2 Stations	111	*3	Wilkins	17	10	.49	+.07	Searchlight	2.68	7 Stations	.00		
New Hampshire	60.0	+1.6	West Lebanon	91	3	2 Stations	28	*8	3.20	-.50	Alexandria	6.45	Bethlehem	1.85		
New Jersey	66.3	+4	4 Stations	96	13	Layton 3NW	33	27	3.83	+.13	Oak Ridge Reser.	8.88	Atlantic City WB	1.20		
New Mexico	66.0	+7	2 Stations	104	*1	Red River	18	14	.95	-.90	Aurora	3.27	Penistaja	.04		
New York	61.8	+6	Dansville	101	15	2 Stations	23	27	3.35	-.12	Rifton	8.17	Patchogue	1.04		
North Carolina	70.1	-.8	Louisburg	98	15	Banner Elk	31	27	3.40	-.65	Southport	14.55	Altapass	.12		
North Dakota	60.7	+3.6	2 Stations	101	*10	Nolla	20	19	.62	-.91	Sherwood 3N	1.89	Reeder	.00		
Ohio	64.9	-.7	Vickery 2NW	101	*12	Millport 2NW	31	27	2.82	-.12	Irwin	5.25	Portsmouth	.80		
Oklahoma	74.4	+2	Waurika	108	1	4 Stations	38	*3	.60	-2.55	Zoe	5.76	5 Stations	.00		
Oregon	61.9	+3.2	Illaha 1N	105	2	Seneca	15	14	.67	-.52	Crater Lake NP HQ	2.28	Milton	.00		
Pennsylvania	63.5	-.5	Newell	100	*12	Kane 1NNE	27	*25	3.95	+.55	Quakertown	8.33	Keating Summit	.56		
Rhode Island	64.3	+1.0	Providence WB City	90	*2	Kingston	34	28	1.78	-1.52	Providence WB AP	2.64	Kingston	1.17		
South Carolina	72.6	-2.0	4 Stations	94	*1	Long Creek	45	*4	3.44	-.71	Myrtle Beach CAA AP	9.14	Crescent	.07		
South Dakota	65.3	+3.7	2 Stations	107	4	Deerfield Dam	19	22	.34	-1.21	Camp Crook	1.52	13 Stations	.00		
Tennessee	68.7	-2.6	Savannah	99	1	3 Stations	37	24	2.85	-.34	Friendship School	5.47	Selmer	.84		
Texas	76.0	-.3	Presidio	112	1	Stratford	39	23	2.23	-.66	Hye	24.12	13 Stations	.00		
Utah	63.9	+3.1	2 Stations	104	3	2 Stations	21	*12	.51	-.53	Thompsons	1.94	20 Stations	.00		
Vermont	59.3	+1.2	do	92	*13	do	27	28	3.34	-.36	Searsburg Sta.	5.26	Burlington WB AP	2.26		
Virginia	67.0	-1.4	Glenns 1S	101	13	Burkes Garden	31	24	3.22	-.06	Big Meadows	6.72	Galax 3S	.44		
Washington	61.9	+3.0	Kosmos	101	22	2 Stations	25	*13	.49	-1.15	Arlington	2.21	4 Stations	.00		
West Virginia	64.0	-2.2	Brownsville	102	*13	Canaan Valley	22	24	2.38	-.63	Berkley Springs	6.71	Kayford	.72		
Wisconsin	60.2	+3	3 Stations	95	*10	Land O' Lakes	23	24	.78	-2.94	Cedar Falls Hydro.Pl.	2.31	Fairchild Ranger Sta.	.11		
Wyoming	59.0	+3.8	do	98	*4	Bondurant	10	14	.31	-.89	Wheatland 1N	2.23	16 Stations	.00		
*Alaska	53.5	-.5	Crooked Creek	89	21	Wainwright	23	24	2.62	+.30	Cordova WB AP	17.78	Fort Yukon CAA	.57		
**Hawaii	73.8	-1.0	Puunene CAA AP	94	*2	Haleakala RS	39	12	3.25	-2.85	Waiakeoi Dam	18.25	19 Stations	.00		
Puerto Rico	78.2	-.3	Juncos	96	13	Garzas Dam	55	29	12.59	+4.94	Guineo Reservoir	26.18	Mona Island	3.47		

° Other dates also.

\* July 1952.

\*\* August 1952.



## CLIMATOLOGICAL DATA

SEPTEMBER 1952

Table 2

State and station	Elevation (ground) ft.	Pressure			Temperature										Precipitation						Wind				No. of days (sunrise to sunset)		Possible sunshine						
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max. 90° F. or above Min. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days 0.1 inch or more With thunderstorms	Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		Date	Clear		Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)			
																			Total	Max. depth on ground			Speed	Direction									
		Mb.	Mb.	°F.	°F.	°F.	°F.	°F.	°F.	°F.		°F.	%	In.	In.	In.	In.	In.	In.	In.	M. p. h.	M. p. h.			O-3	4-7	8-10	O-10	%				
ALABAMA																																	
Anniston	599	-----	1018.2	83	57	70.2	----	90	1	47	27	1	0	62	--	2.64	-1.03	0.70	8	2	0.0	0	4.7	E	*25	S	11	15	6	9	4.7	--	
Birmingham	610	993.6	1018.8	83	60	71.7	-1.5	91	1	49	23	1	0	60	71	2.69	-.69	1.43	7	3	0	0	7.2	NE	26	N	2	14	7	9	4.4	68	
Mobile CO	10	-----	1018.8	84	68	75.9	-2.2	90	8	60	28	1	0	60	71	10.57	+5.57	6.62	10	8	0	0	9.1	NE	31	N	14	8	7	15	6.1	50	
Mobile	211	1008.8	1016.7	85	67	75.8	1.1	92	8	59	4	1	0	66	77	12.13	1.13	4.40	10	6	0	0	9.6	NE	---	---	---	10	8	12	5.6	---	
Montgomery CO	201	-----	1018.8	84	66	75.1	-1.2	91	17	58	4	2	0	66	77	1.32	-1.67	.55	9	3	0	0	9.6	NE	---	---	---	10	8	12	5.6	---	
Montgomery	198	1010.2	1017.5	86	64	74.7	-1.6	92	1	55	27	5	0	64	75	2.01	-.98	.70	8	3	0	0	5.9	NE	32	SE	12	12	6	12	5.4	63	
ARIZONA																																	
Flagstaff	6993	790.4	1018.5	75	42	58.3	----	85	3	26	13	0	3	52	43	2.09	-1.52	.57	7	7	T	T	6.6	---	---	---	---	16	8	6	3.8	---	
Phoenix CO	1083	-----	1018.5	101	73	86.9	+4.2	110	3	58	13	28	0	53	36	.06	-.69	.06	2	5	0	0	6.6	---	---	SE	28	---	---	---	---	92	---
Phoenix	1108	971.2	1009.1	100	71	85.8	----	110	3	55	13	29	0	53	36	.23	-.52	.21	4	4	0	0	4.8	SE	*22	SE	26	19	8	3	2.7	---	
Prescott	5014	849.3	1013.2	85	54	69.3	----	94	1	37	13	12	0	39	39	1.87	-1.17	.78	8	0	0	0	8.6	SW	36	S	7	20	6	4	3.1	79	
Tucson	2558	923.8	1009.7	98	69	83.3	+3.6	106	3	52	13	30	0	49	34	.80	-.38	.29	4	6	T	T	6.6	SE	31	SW	21	22	5	3	2.5	89	
Winslow	4880	853.4	1012.6	85	54	69.6	+7.9	95	1	40	13	9	0	38	38	1.06	-.04	.91	4	4	0	0	6.8	SE	*39	WSW	11	21	4	5	3.0	---	
Yuma	203	1003.1	1008.0	105	76	90.4	----	113	5	60	11	29	0	53	33	T	---	T	0	1	0	0	7.3	SW	29	N	19	26	3	1	1.1	95	
ARKANSAS																																	
Fort Smith	458	1001.0	1017.6	88	59	73.3	-7.7	101	1	46	25	16	0	56	66	1.68	-1.31	.88	3	4	0	0	6.5	NE	23	N	23	24	4	2	2.1	81	
Little Rock	257	1005.1	1017.9	86	61	73.3	-8.1	91	1	50	25	8	0	58	68	2.55	-.62	2.37	3	3	T	0	7.3	NE	50	NW	17	16	10	4	3.3	86	
Texarkana	361	1003.7	1017.2	90	62	75.8	-1.6	98	1	47	25	18	0	58	64	.04	-2.54	.04	1	2	0	0	7.4	NE	*40	WNW	17	14	13	3	3.4	71	
CALIFORNIA																																	
Bakersfield	489	994.2	1011.8	93	62	77.7	+3.5	104	2	46	11	22	0	52	43	T	-.13	T	0	1	0	0	4.8	WNW	*30	NNW	10	25	4	1	1.6	---	
Beaumont CO	2589	-----	1011.8	91	56	73.5	----	101	5	41	12	20	0	52	43	1.12	-.98	.98	3	2	0	0	4.8	---	---	---	---	21	6	3	2.8	---	
Bishop	4108	874.0	1012.9	89	47	67.9	----	99	2	32	11	17	1	50	50	.08	-.08	.05	3	2	0	0	6.6	---	---	---	---	20	5	5	2.8	---	
Blue Canyon	5280	840.8	1013.5	73	54	63.7	+3.5	85	1	31	11	0	2	47	37	1.10	-.90	.44	4	4	0	0	7.3	NE	28	SE	9	22	5	3	2.2	91	
Burbank	699	985.8	1011.9	89	61	75.1	+3.5	101	5	50	12	17	0	52	52	.06	-.03	.02	1	1	0	0	4.0	SE	*19	NW	7	20	6	4	2.4	---	
Eureka CO	43	1013.9	1016.3	61	51	55.6	+3.5	78	14	46	8	0	0	54	52	.09	-.12	.07	2	2	0	0	5.0	WNW	28	SW	25	24	6	0	1.5	96	
Fresno	331	999.7	1011.3	92	59	75.5	+3.5	103	2	44	11	20	0	54	52	.09	-.12	.07	2	2	0	0	5.0	WNW	28	SW	25	24	6	0	1.5	96	
Los Angeles CO	312	-----	1011.3	85	64	74.3	+5.3	97	1	54	15	8	0	58	75	.06	-.06	.06	1	0	0	0	5.2	SE	26	SE	19	22	5	3	2.5	86	
Los Angeles	99	1007.8	1011.6	85	64	74.3	+5.3	97	1	54	15	8	0	58	75	.06	-.06	.06	1	0	0	0	5.2	SE	26	SE	19	22	5	3	2.5	86	
St. Shasta CO	3543	893.0	1015.1	82	48	65.0	+6.2	94	2	38	11	10	0	54	73	T	-.41	T	0	1	0	0	5.8	WNW	*26	N	9	21	0	0	2.7	---	
Oakland	3	1013.5	1014.0	77	56	66.1	+4.2	99	2	32	11	17	1	50	50	.08	-.08	.05	3	2	0	0	7.3	NE	28	SE	9	22	5	3	2.2	91	
Red Bluff	341	999.3	1011.7	94	62	78.1	+5.0	106	1	49	12	21	0	47	37	.03	-.77	.03	1	1	0	0	8.2	SW	27	SW	4	23	4	3	1.9	87	
Sacramento	17	1011.2	1012.1	89	58	73.1	+3.8	100	1	50	10	16	0	54	56	T	-.38	T	0	0	0	0	8.2	SW	27	SW	4	23	4	3	1.9	87	
Sandberg	4517	863.2	1012.6	81	60	70.5	+2.0	92	1	36	11	3	0	36	34	T	-.03	T	0	1	0	0	13.8	NW	--	--	23	4	3	1	1.9	--	
San Diego	19	1008.5	1011.5	78	63	70.5	+2.3	90	6	55	12	2	0	60	73	T	-.08	T	0	0	0	0	5.7	NW	22	N	6	19	6	5	3.4	71	
San Francisco CO	52	-----	1011.5	69	54	61.5	+6.0	90	1	49	29	1	0	53	79	T	-.45	T	0	0	0	0	9.6	---	---	---	---	19	18	0	3	2.7	66
San Francisco	1	1013.2	1013.9	73	53	62.9	+2.9	93	1	46	30	1	0	53	79	T	-.10	T	0	0	0	0	12.1	WNW	33	WNW	8	20	9	1	2.4	---	
Santa Catalina	1568	956.3	1010.8	82	64	73.0	+2.9	93	1	51	10	2	0	53	77	T	-.02	.02	2	0	0	0	5.1	N	*22	W	10	24	5	1	2.3	---	
Santa Maria	231	1005.1	1013.8	74	51	62.5	+2.9	85	1	43	11	0	0	53	77	T	-.02	.02	2	0	0	0	5.1	N	*22	W	10	24	5	1	2.3	---	
COLORADO																																	
Alamosa	7534	776.5	1020.3	74	37	55.7	+3.5	85	6	28	26	0	9	52	43	1.28	-.50	.70	6	6	T	T	10.0	WNW	*30	NNW	14	23	1	6	2.7	---	
Alamosa	6175	815.4	1016.7	77	48	62.4	+4.0	92	5	38	22	1	0	35	42	.37	-.25	.22	2	2	0	0	10.0	WNW	*30	NNW	14	23	1	6	2.7	---	
Colorado Springs	5292	841.2	1015.8	81	50	65.6	+4.0	93	4	40	2	5	0	35	38	.54	-.94	.40	4	4	0	0	6.8	S	43	SE	12	19	7	4	3.2	79	
Denver	4849	861.5	1014.9	83	54	68.6	+2.4	93	5	47	22	4	0	38	36	.39	-.53	.35	3	5	0	0	9.4	ESE	42	N	9	16	10	4	3.1	85	
Grand Junction	4799	859.8	1016.5	83	50	66.3	+1.7	96	5	41	23	6	0	41	46	.67	-.08	.41	3	1	0	0	4.9	NW	50	SW	12	21	6	3	2.7	81	
Pueblo	4799	859.8	1016.5	83	50	66.3	+1.7	96	5	41	23	6	0	41	46	.67	-.08	.41	3	1	0	0	4.9	NW	50	SW	12	21	6	3	2.7	81	
CONNECTICUT																																	
Bridgeport	7	1018.3	1019.0	77	57	66.7	+1.4	89	13	44	28	0	0	57	75	3.06	-.49	1.06	7	0	0	0	7.9	NE	*30	SE	1	15	7	8	4.3	---	
Hartford	15	1012.9	1018.7	76	53	64.5	+2.8	90	12	40	28	2	0	56	78	1.58	-1.91	.91	10	0	0	0											



## CLIMATOLOGICAL DATA

Table 2—Continued

SEPTEMBER 1952

State and station	Elevation (ground)	Pressure			Temperature										Precipitation						Wind				No. of days (sunrise to sunset)												
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days	No. 90° F. or above	Min. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		Direction	Speed	Days	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine		
																				0.1 inch or more	With thunderstorms	Total	Max. depth on ground			Speed	Direction									Days	Clear
																				0.1 inch or more	With thunderstorms	Total	Max. depth on ground			Speed	Direction									Days	Clear
Pt.	Mh.	Mh.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	%	In.	In.	In.	In.	In.	In.	In.	In.	In.	M.	M.	M.	M.	0-3	4-7	8-10	0-10	%							
INDIANA																																					
Evansville	385	1003.7	1019.4	82	54	67.9	+0.2	95	1	42	24	6	0	56	80	2.07	-1.24	0.83	5	3	0.0	0	7.3	NW	42	NW	1	21	4	5	2.6	84					
Fort Wayne	801	987.5	1018.5	76	52	63.9	+8	91	11	39	24	4	0	55	81	2.68	-1.38	1.02	6	3	0.0	0	6.0	SW	25	NW	1	17	9	4	3.5	78					
Indianapolis	796	990.2	1019.2	79	53	66.0	+6	94	11	39	23	3	0	54	76	4.62	+1.22	1.64	5	4	0.0	0	8.1	SW	61	NW	18	18	8	4	2.8	86					
South Bend	768	990.9	1018.7	76	51	63.8	-1.7	94	11	39	27	4	0	53	77	7.1	-2.64	2.22	6	4	T	T	8.9	SSW	*25	SW	15	16	6	8	4.0	--					
Terre Haute	585	998.0	1019.3	80	52	66.0	-2.3	94	1	38	23	4	0	55	80	2.84	-1.78	1.33	6	4	0.0	0	4.6	E	34	SW	17	19	7	4	2.8	81					
IOWA																																					
Burlington	605	992.9	1018.5	79	52	65.5	-9	93	28	39	23	3	0	53	73	1.34	-3.12	1.24	4	3	0.0	0	8.4	S	27	NW	2	15	11	4	3.5	86					
Charles City CO	1013	981.4	-----	76	50	62.6	+1.6	90	30	36	23	1	0	---	---	32	-3.36	2.1	5	1	0.0	0	5.3	---	19	S	13	14	12	4	3.8	69					
Davenport CO	579	996.6	-----	78	56	67.1	+1.5	92	12	43	23	2	0	---	---	60	-2.98	3.38	3	2	0.0	0	---	---	---	---	---	---	---	---	---	---	---				
Des Moines	800	987.1	1018.3	79	53	66.1	+8	92	30	37	23	3	0	53	71	5.3	-3.14	4.4	3	1	0.0	0	9.8	SSE	36	NW	2	14	7	9	4.2	83					
Dubuque	641	979.0	1018.1	75	49	61.9	---	91	28	35	21	1	0	80	75	8.5	-3.11	5.9	5	2	0.0	0	---	---	*24	SSW	5	13	12	5	4.1	---					
Sioux City	1097	975.6	1016.8	80	51	65.8	+3.3	92	8	35	23	4	0	53	72	1.51	-1.52	1.35	4	2	0.0	0	7.8	SSE	26	S	12	14	11	5	3.8	82					
KANSAS																																					
Concordia CO	1375	967.8	-----	86	59	72.2	+3.9	100	16	44	23	14	0	---	---	71	-1.89	1.50	3	2	0.0	0	7.5	---	23	N	1	19	5	6	3.1	80					
Dodge City	2594	929.9	1015.5	85	57	71.1	+1.7	96	16	46	22	9	0	45	48	1.18	-1.72	1.7	2	1	0.0	0	14.3	S	53	NE	1	20	2	8	3.1	87					
Goodland	3645	891.0	1015.8	85	49	66.9	+6	98	5	35	22	12	0	39	47	3.1	-1.29	2.26	2	2	0.0	0	12.4	S	*35	NW	16	20	5	5	2.7	--					
Topeka	926	982.4	1017.8	87	54	70.6	---	98	16	40	23	16	0	52	62	6.6	---	4.0	3	5	T	T	8.5	S	57	N	1	19	6	5	3.3	86					
Wichita	1372	969.5	1017.3	86	59	72.8	+2.2	97	16	48	21	14	0	47	48	2.8	-2.81	2.7	3	2	0.0	0	13.3	S	59	NE	1	22	3	5	2.4	85					
KENTUCKY																																					
Lexington	979	983.7	1019.4	81	56	68.4	-1	94	1	44	23	6	0	53	63	1.58	-1.49	1.67	5	3	0.0	0	7.3	NE	---	---	---	19	7	4	2.9	--					
Louisville CO	457	-----	-----	81	60	70.3	-2	94	12	50	24	4	0	---	---	1.95	-1.83	1.46	8	2	0.0	0	---	---	---	---	---	---	---	---	---	---	---				
Louisville	485	1002.4	1018.6	83	55	68.8	-2	96	1	42	24	6	0	54	67	1.75	-1.03	1.48	6	4	0.0	0	6.1	N	28	NW	1	20	5	5	2.9	80					
LOUISIANA																																					
Baton Rouge	64	1012.9	1015.8	88	65	76.4	-1.9	94	11	37	5	10	0	63	74	94	-3.62	3.6	7	5	0.0	0	7.5	NE	---	---	---	14	7	9	4.4	--					
Lake Charles	12	1014.2	1015.6	88	66	77.3	-1.0	93	16	59	4	11	0	65	76	1.77	-2.64	1.14	5	3	0.0	0	8.2	NE	---	---	---	12	11	7	4.5	--					
New Orleans CO	12	1013.5	-----	85	71	78.0	-1.2	90	2	65	4	1	0	---	---	2.32	-2.71	1.72	7	4	0.0	0	7.2	---	23	E	9	8	13	9	5.5	69					
New Orleans	12	1013.2	1013.4	86	70	77.7	---	90	2	61	5	2	0	68	78	2.81	---	1.35	9	4	0.0	0	9.4	NW	*25	ESE	3	13	7	10	4.9	--					
Shreveport	174	1007.1	1016.5	89	64	76.8	-5	99	1	53	25	15	0	60	64	8.0	-2.00	7.5	3	2	0.0	0	7.4	E	27	NW	2	15	12	3	3.5	81					
MAINE																																					
Caribou	624	993.6	1016.8	66	43	54.4	+1.9	78	29	28	15	0	4	46	76	2.18	-1.41	4.6	12	1	0.0	0	9.9	WSW	*35	S	26	6	11	13	6.4	--					
Eastport CO	33	1014.9	1015.9	65	50	57.4	+1.6	75	5	41	27	0	0	---	---	1.71	-1.07	7.6	10	3	0.0	0	8.1	---	27	S	2	10	12	8	5.1	63					
Portland	61	1014.2	1018.2	72	47	59.4	+1.5	87	2	33	28	0	0	53	81	2.67	-1.43	1.9	9	2	0.0	0	7.6	S	28	NW	3	13	13	4	4.5	69					
MARYLAND																																					
Baltimore CO	14	-----	-----	80	62	70.7	+2.2	97	13	52	28	4	0	---	---	4.53	+1.16	3.31	7	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
Baltimore	146	1014.6	1019.3	80	56	68.0	-7	97	13	45	28	4	0	56	72	5.68	+2.22	3.96	9	3	0.0	0	8.0	W	56	W	1	18	5	7	3.5	69					
Frederick	294	-----	-----	78	52	64.9	-3.6	94	14	41	28	3	0	---	---	3.05	-5.1	1.68	9	2	0.0	0	---	---	---	---	---	---	---	---	---	---	---				
MASSACHUSETTS																																					
Blue Hill Obs.	640	994.9	-----	74	55	63.6	+3.0	97	2	41	27	0	0	---	---	73	1.32	-2.56	5.6	9	2	0.0	0	12.4	S	40	SSE	1	15	7	8	4.5	69				
Boston	12	1013.9	1018.3	75	58	66.3	+3.1	90	13	46	27	2	0	54	68	1.13	-2.01	5.4	8	1	0.0	0	11.4	SSW	37	NE	7	15	7	8	4.3	68					
Nantucket	43	1018.3	1018.7	70	54	62.2	-6	81	12	43	9	0	0	57	83	7.3	-1.72	2.6	6	2	0.0	0	12.1	SW	42	NE	7	10	12	8	4.9	73					
Pittsfield	1153	976.0	1018.3	71	48	59.2	+1.8	85	11	36	28	0	0	---	---	5.18	+1.16	2.77	9	3	0.0	0	---	---	---	---	---	---	---	---	---	---	---				
MICHIGAN																																					
Alpena CO	587	994.6	-----	71	51	60.7	+3.1	90	10	38	27	1	0	---	---	1.03	-1.95	3.5	9	3	0.0	0	8.5	---	26	SE	26	9	13	8	5.2	59					
Detroit	619	991.9	1018.4	76	54	64.8	+2.4	96	12	41	24	5	0	51	70	2.30	-6.10	1.10	7	3	0.0	0	8.4	S	35	NW	1	16	7	7	4.2	71					
Escanaba CO	594	993.9	-----	66	49	57.4	+3	77	13	36	24	0	0	---	---	1.20	-2.12	5.0	7	2	0.0	0	10.2	---	34	N	6	9	15	6	4.9	59					
Grand Rapids	638	992.9	1018.1	78	51	62.7	+2.7	95	12	38	27	3	0	53	77	2.89	-6.47	1.17	8	6	T	T	7.0	SSW	30	SW	25	13	9	8	4.5	65					
Lansing	559	986.5	1018.5	73	50	61.7	0	92	13	38	24	2	0	51	78	1.54	-1.37	7.6	9	4	0.0	0	8.8	SSW	40	W	1	17	6	7	4.0	70					
Marquette CO	877	988.2	-----	70	50	60.2	+2.7	93	12	39	7	4	0	---	---	1.62	-1.63	7.9	13	1	0.0	0	8.8	---	27	S	8	4	11	5	6.8	59					
Muskegon	627	994.9	1017.9	73	52	62.2	0	92	12	38	27	2	0	53	79	2.22	-2.98	9.1	9	4	T	T	8.0	WNW	*31	WSW	14	15	7	8	4.4	--					
Sault Ste. Marie	721	993.6	1016.3	68	48	57.6	+3.6	86	13	37	27	0	0	51	87	3.10	-1.44	7.7	12	6	T	T	7.6	SW	NW	25	7	5	18	6	4.1	--					
Ypsilanti	722	989.8	1018.2	77	52	64.6	---																														



## CLIMATOLOGICAL DATA

SEPTEMBER 1952

Table 2-Continued

State and station	Elevation (ground)	Pressure					Temperature										Precipitation										Wind					No. of days (sunrise to sunset)		Possible sunshine
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days 90° F or above	No. of days 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days .01 inch or more	With thunderstorms	Snow, Sleet, Hail	Max depth on ground	Average hourly speed	Prevailing direction	Fastest mile		Partly cloudy	Cloudy						
																									Speed	Direction			Date	Clear				
	ft.	mb.	mb.	°F	°F	°F	°F	°F	°F	°F			°F	%	in.	in.	in.			in.	in.	M. p. h.	M. p. h.			0-3	4-7	8-10	0-10	%				
NEVADA																																		
Lake Mead	5075	846.6	1015.8	83	38	60.5	-----	93	3	28	12	2	4	30	37	0.40	-0.02	0.28	2	3	T	0	5.2	E	*25	WNW	9	22	6	2	2.3	---		
Las Vegas	2162	846.6	1015.8	83	38	60.5	+6.9	88	*2	25	13	0	5	---	---	---	---	---	---	---	---	11.9	---	47	WNW	10	20	5	3	3.1	77			
Primm	4397	863.5	1015.2	82	42	61.9	+5.3	107	*2	52	13	23	0	35	26	.87	+3.54	.87	2	0	---	0	6.0	WSW	*28	WSW	8	20	7	3	2.3	83		
Primm	4397	863.5	1015.2	82	42	61.9	+3.9	92	2	35	13	3	0	40	50	.67	+4.1	.54	2	1	T	0	4.3	SSW	35	SW	*4	21	3	6	2.7	84		
Primm	4397	863.5	1015.2	82	42	61.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Primm	4299	869.3	1015.6	82	40	61.1	+1.9	93	*2	30	12	6	3	35	41	1.00	+1.59	.62	5	2	T	0	7.2	---	57	W	9	22	5	3	2.4	87		
NEW HAMPSHIRE																																		
Concord	339	1007.5	1018.3	75	48	61.1	+3.1	89	2	33	28	0	0	53	78	3.04	-.41	2.15	10	2	---	0	4.6	NW	23	E	1	11	12	7	5.1	60		
Washington	6262	810.4	1021.7	47	37	42.4	+1.4	59	2	30	20	0	9	---	87	7.28	-.20	1.13	22	1	2.0	1	27.3	W	176	SW	19	6	10	14	6.5	44		
NEW JERSEY																																		
Newark City CO	8	1016.6	1018.6	75	63	69.1	+2.3	92	13	53	28	1	0	---	---	1.20	-1.45	.43	7	1	---	0	13.8	---	68	SE	1	14	7	9	4.5	74		
Newark	11	1017.6	1018.6	78	58	68.2	+1.7	94	13	48	28	4	0	57	72	3.62	-.15	2.08	8	2	---	0	6.9	SW	*31	SE	1	12	9	4	4.6	74		
Princeton CO	56	1011.5	1018.3	76	58	67.9	+1.0	93	13	49	27	2	0	---	---	3.36	-.04	1.99	8	4	---	0	7.1	---	38	S	1	12	8	10	4.6	71		
NEW MEXICO																																		
Albuquerque	5310	851.3	1013.6	85	57	70.7	+2.8	96	5	49	24	8	0	38	36	.34	-.48	.23	4	2	---	0	9.4	ESE	52	S	12	21	3	6	2.7	82		
Dayton	4969	849.3	1016.7	79	51	65.0	-.8	89	19	41	23	0	0	41	46	.24	-1.60	.21	2	1	---	0	---	---	---	---	---	---	18	6	6	3.2	---	
El Paso	6379	809.7	1017.0	76	45	60.3	---	88	5	36	26	0	0	---	---	2.75	---	2.13	6	4	---	0	---	---	---	---	---	19	5	6	3.1	---		
Laswell	3612	895.7	1015.1	86	56	70.8	+5	98	19	47	25	12	0	46	46	.76	-1.35	.69	3	1	---	0	9.7	---	54	NW	17	16	8	6	3.5	---		
NEW YORK																																		
Albany	277	1014.2	1018.0	74	50	62.1	+9	90	11	36	28	0	0	54	77	3.47	+66	2.47	7	1	---	0	6.7	S	34	NW	1	14	6	10	5.2	69		
Adirondack Park	1300	---	---	71	55	63.2	---	86	13	44	27	0	0	---	---	5.01	---	2.97	8	2	---	0	---	---	---	---	---	15	7	8	4.3	---		
Albany	1601	960.0	1019.0	71	51	60.9	---	89	14	39	27	0	0	53	76	2.27	---	.71	7	1	---	0	8.0	SW	32	SW	18	11	10	9	4.9	73		
Albany	693	990.5	1018.8	73	53	63.1	+1.5	91	12	38	27	3	0	53	73	2.72	---	.20	128	10	4	---	0	12.4	S	32	SE	2	10	12	8	5.0	63	
New York CO	10	1007.1	---	77	61	69.1	+2.3	93	13	51	27	3	0	---	---	1.96	-1.43	1.04	8	4	---	0	10.5	---	69	SE	1	14	7	9	4.4	71		
New York	19	1016.9	1018.7	78	62	70.1	---	93	13	52	27	3	0	57	68	2.45	---	1.20	7	1	---	0	10.2	NW	45	SE	1	13	9	8	4.6	---		
New York	292	1003.7	---	72	55	63.4	+1.9	88	2	43	27	0	0	---	---	3.71	+1.00	1.28	13	4	T	0	7.7	---	23	W	2	13	12	5	4.3	68		
New York	543	999.0	1018.1	76	52	64.3	+1.9	94	13	38	27	5	0	53	73	2.90	+4.51	1.22	7	3	---	0	8.9	SW	36	NW	18	13	6	7	4.6	68		
New York	217	---	---	73	53	62.8	+1.2	86	13	42	28	0	0	---	---	3.29	-.12	2.52	6	0	---	0	---	---	---	---	---	13	8	9	4.7	---		
New York	399	996.6	1018.5	76	52	63.8	+3.5	90	*13	41	28	2	0	53	72	1.52	-1.20	.59	8	1	---	0	8.0	W	29	S	18	11	12	7	4.8	73		
NORTH CAROLINA																																		
Asheville CO	2203	---	---	78	54	66.2	+1.2	87	1	43	26	0	0	---	---	.84	-2.20	.39	6	0	---	0	---	---	23	NW	2	9	13	8	5.4	72		
Asheville	2093	946.5	1019.4	80	61	70.3	-.1	88	*14	51	23	0	0	61	75	2.24	-.75	.97	5	2	---	0	3.4	NNW	---	---	---	---	---	---	---	---		
Charlotte	753	991.5	1018.9	80	61	70.3	-.1	88	*14	51	23	0	0	61	75	2.24	-.75	.97	5	2	---	0	5.5	NE	21	NE	21	9	11	7	5.4	77		
Charlotte	891	988.5	1020.1	80	57	68.5	-1.3	89	13	48	28	0	0	59	79	2.48	-.77	2.23	4	3	---	0	6.2	NE	24	NE	21	18	7	10	4.9	86		
Charlotte	4	1016.9	1017.3	80	71	75.3	+8	91	14	64	28	0	0	69	82	6.67	+2.06	.57	7	4	---	0	13.1	NNE	35	N	22	10	8	12	5.7	59		
Charlotte	400	---	---	82	61	71.2	+1	93	14	48	28	4	0	---	---	2.74	-.87	1.31	5	1	---	0	5.5	---	18	SW	2	10	9	11	5.6	61		
Charlotte	438	1003.4	1019.2	81	59	70.3	---	92	14	45	28	4	0	61	80	1.71	---	.82	6	2	---	0	6.2	NE	---	---	---	12	7	11	5.2	---		
Charlotte	30	1016.3	1017.3	84	66	74.6	+1.5	93	14	54	27	4	0	67	82	5.47	+9.6	4.04	10	5	---	0	10.9	NE	31	NE	1	7	13	10	5.8	51		
Charlotte	967	984.8	1019.8	80	59	69.5	-1.0	91	14	49	23	2	0	58	71	1.48	---	.98	3	1	---	0	7.9	NE	---	---	---	12	9	9	4.8	---		
NORTH DAKOTA																																		
Grand Forks	1653	955.0	1014.5	80	47	63.2	+5.9	100	10	32	22	7	1	45	81	.40	-.83	.25	4	1	---	0	9.6	WNW	49	N	30	14	8	8	4.3	70		
Grand Forks	1471	961.1	---	74	45	59.8	+3.9	94	10	30	19	5	1	---	---	.39	-1.24	.23	6	1	---	0	8.6	---	33	NW	30	16	11	3	3.7	82		
Grand Forks	895	980.0	1014.4	76	49	62.4	+4.2	96	10	33	19	5	0	45	62	1.17	-.20	.15	1	2	---	0	13.5	SSE	34	W	14	10	15	5	4.5	77		
Grand Forks	1877	947.5	1014.8	74	48	61.0	+4.4	90	26	34	22	1	0	45	65	1.08	-.01	.58	8	5	---	0	7.0	---	29	E	9	8	13	9	5.5	74		
OHIO																																		
Cincinnati	1210	981.7	1019.9	76	51	63.5	-.8	93	12	38	27	3	0	52	71	3.94	+6.1	2.19	8	2	---	0	7.0	S	---	---	---	16	10	4	3.5	---		
Cincinnati	761	---	---	80	55	67.7	+8	95	1	44	24	4	0	---	---	2.80	+1.15	1.32	8	3	---	0	4.4	---	26	W	1	---	---	---	---	74		
Cincinnati	553	987.5	1019.3	79	54	66.5	+5	94	1	41	23	5	0	52	65	3.06	+0.9	1.25	8	4	---	0	7.9	SSW	---	---	---	19	6	5	3.1	---		
Cincinnati	663	---	---	75	58	66.1	+2	93	13	45	27	3	0	---	---	3.41	-.08	1.06	9	---	---	0	---	---	---	---	---	---	---	---	---	---		
Cincinnati	787	991.5	1018.9	78	54	65.6	+1.8	98	12	39	27	5	0	53	69	3.02	-.31	1.05	10	4	---	0	7.9	S	31	W	1	16	10	4	3.5	76		
Cincinnati	724	---	---	78	56	67.0	+5	94	11	45	23	5	0	---	---	1.84	-.73	.68	8	---														



## CLIMATOLOGICAL DATA

Table 2—Continued

SEPTEMBER 1952

State and station	Elevation (ground)	Pressure			Temperature										Precipitation										Wind				No. of days (sunrise to sunset)						
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max. 90° F. or above	Min. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days .01 inch or more	With thunderstorms	Total	Snow, Sleet, Hail	Max. depth on ground	Average hourly speed	Prevailing direction	Fastest mile	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine		
Fl.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	%	In.	In.	In.	.01 inch or more	In.	In.	In.	M. p. h.	M. p. h.	0-3	4-7	8-10	0-10	%										
SOUTH CAROLINA																																			
Charleston CO	9	1015.2	-----	81	69	75.4	-1.2	90	1	61	9	2	0	---	---	7.67	+3.14	3.11	8	6	0.0	0	10.6	---	30	E	11	6	10	14	6.7	61	---		
Charleston	41	1015.6	1017.4	84	65	74.6	+4	93	1	55	27	5	0	68	84	7.24	+2.11	3.68	9	6	0.0	0	7.7	NNE	---	---	---	4	11	15	6.7	61	---		
Columbia CO	332	1005.1	-----	83	64	73.4	-1.1	92	1	55	27	3	0	---	---	2.38	-1.07	1.36	8	3	0.0	0	7.1	---	27	S	18	12	8	10	5.3	61	---		
Columbia	217	1009.8	1017.9	84	63	73.5	---	93	1	50	27	5	0	63	77	2.65	---	1.81	9	5	0.0	0	6.1	NE	---	---	---	12	9	9	12	5.8	---	---	
Florence	146	1012.5	-----	84	63	73.4	-1	92	1	55	27	7	0	---	---	4.86	---	1.58	8	6	0.0	0	---	---	---	---	---	9	9	12	5.8	---	---		
Greenville	1008	981.7	1018.1	82	62	71.8	+1.2	90	1	55	23	1	0	59	71	1.28	-2.40	1.46	7	1	0.0	0	8.2	NNE	31	NE	11	10	9	11	5.4	72	---		
Spartanburg	801	989.2	1019.0	80	61	70.6	-1.5	89	1	53	24	0	0	---	---	1.64	-1.82	.70	7	3	0.0	0	---	---	---	---	---	11	6	13	5.3	---	---		
SOUTH DAKOTA																																			
Huron	1282	949.9	1014.9	82	49	65.6	+4.3	102	8	35	23	8	0	44	55	.10	-1.47	.05	2	0	0	0	11.5	S	47	SW	10	15	10	5	4.0	82	---		
Rapid City	3215	902.5	1015.2	83	52	67.2	+7.0	98	10	40	22	10	0	42	61	.21	-.99	.17	3	3	0.0	0	9.8	NNW	34	SW	13	18	7	5	3.4	78	---		
Sioux Falls	1420	965.8	1016.8	79	50	64.5	+2.2	93	8	30	23	5	1	46	61	.47	-2.19	.37	3	2	0.0	0	11.0	S	*30	SSW	10	14	9	7	4.0	---	---		
TENNESSEE																																			
Bristol	1519	965.8	1019.7	80	54	67.2	-4.1	90	13	45	*24	1	0	56	73	2.35	-.37	.87	7	1	0.0	0	3.8	E	*25	ESE	12	13	8	9	4.4	---	---		
Chattanooga	670	991.2	1018.6	83	57	69.8	+1.6	93	1	46	23	1	0	60	79	2.65	-.46	.97	6	2	0.0	0	3.4	NE	27	NNW	2	14	8	8	4.7	61	---		
Knoxville	949	984.4	1019.2	83	58	70.4	+1.0	92	12	49	26	4	0	58	70	1.94	-.74	.80	6	3	0.0	0	5.5	N	35	NW	2	16	7	7	4.4	63	---		
Memphis CO	271	-----	-----	82	64	73.0	-.6	93	1	52	24	2	0	---	---	2.75	-.05	1.23	4	5	0.0	0	---	---	---	---	---	---	---	---	---	---	---	---	
Memphis	263	1000.3	1018.3	85	59	71.8	-.1	94	1	47	24	6	0	58	68	2.56	-.34	1.23	3	3	0.0	0	7.9	NE	25	NE	2	16	7	7	3.5	84	---		
Nashville	577	999.0	1019.0	82	58	70.2	-1.6	94	1	46	24	3	0	58	71	3.65	+2.23	1.47	7	4	0.0	0	3.8	NW	42	NW	1	18	6	6	3.5	67	---		
TEXAS																																			
Arlington	1752	955.6	1015.6	88	63	75.8	+2.0	106	1	54	22	15	0	53	50	2.34	-.36	1.20	7	2	0.0	0	9.3	SSE	42	N	1	17	6	7	4.3	---	---		
Amarillo	3590	892.7	1016.0	84	56	69.9	+2.1	95	19	45	23	9	0	48	53	.38	-1.92	.34	3	0	0	0	9.5	S	36	NE	2	18	5	7	3.5	78	---		
Austin	515	994.6	1016.0	90	66	77.9	-.4	102	1	54	28	19	0	60	62	3.26	-.17	1.66	6	3	0.0	0	7.1	NE	41	N	17	20	4	6	3.1	76	---		
Big Spring	2533	928.5	1015.4	87	64	75.3	-.4	101	1	53	22	15	0	52	52	2.52	+3.47	1.89	5	2	0.0	0	9.3	SE	---	---	---	20	3	7	3.6	---	---		
Brownsville	16	1011.2	1013.5	89	72	80.3	-.3	96	1	65	28	11	0	70	79	5.56	-.26	3.18	9	2	0.0	0	9.2	NE	31	NE	22	11	16	3	4.7	67	---		
Corpus Christi	40	1013.9	1015.0	89	71	79.8	+1.2	97	1	58	27	9	0	70	80	5.52	+1.03	2.10	6	5	0.0	0	9.2	E	32	N	18	18	6	6	3.7	79	---		
Dallas	487	998.0	1016.2	93	66	79.5	+2.1	102	2	55	26	25	0	56	52	.38	-2.34	.38	1	1	0.0	0	9.3	E	43	SW	17	20	7	3	2.6	81	---		
Del Rio	957	980.7	1014.2	94	69	81.2	+2.0	106	1	61	29	25	0	57	51	.04	-2.93	.04	2	3	0.0	0	5.7	E	34	SE	3	19	8	3	2.7	80	---		
El Paso	3920	882.5	1012.2	89	63	76.2	+3.9	99	4	53	25	18	0	44	37	.07	-1.18	.07	2	0	0.0	0	9.2	SE	33	NW	1	21	6	3	2.5	87	---		
Fort Worth	638	992.2	1016.2	93	67	79.8	+3.9	106	1	58	26	24	0	53	48	.54	-1.95	.30	5	3	0.0	0	9.4	ESE	*45	W	1	20	7	3	2.8	---	---		
Galveston	7	-----	-----	84	74	79.0	-1.1	91	2	68	24	1	0	---	---	.98	-4.59	.41	5	0	0.0	0	11.2	---	---	---	---	---	---	---	---	---	---		
Galveston	7	1014.9	1015.5	85	74	79.0	-1.1	90	1	67	25	2	0	71	79	1.94	-3.63	.78	5	7	0.0	0	10.3	NE	---	---	---	16	5	9	4	---	---		
Houston CO	41	1010.5	-----	89	70	79.4	+.4	94	1	62	26	12	0	---	---	1.26	-2.82	.66	4	4	0.0	0	8.5	---	27	E	10	14	7	9	4.2	76	---		
Houston	41	1012.9	1015.3	89	68	78.5	+6.6	96	1	60	26	10	0	65	71	2.62	-1.33	1.30	4	4	0.0	0	11.5	NE	---	---	---	15	7	8	4.1	---	---		
Laredo	500	999.0	1013.8	95	71	83.0	+.8	105	1	64	29	29	0	62	58	.53	-2.75	.32	3	2	0.0	0	11.0	NE	*37	NE	7	18	9	3	3.1	---	---		
Lubbock	3238	905.9	1015.8	83	56	69.7	-1.6	96	19	48	24	5	0	51	58	.92	-1.98	.79	2	1	0.0	0	10.9	SE	*27	NNE	1	17	5	8	3.7	---	---		
Palestine CO	491	998.3	-----	89	66	77.5	+1.5	97	1	54	27	14	0	---	---	.60	-2.31	.60	1	1	0.0	0	6.1	---	28	NW	17	17	12	1	3.1	88	---		
Port Arthur CO	5	1014.2	-----	87	70	78.5	-1.0	92	2	62	4	6	0	---	---	1.46	-3.35	1.01	7	2	0.0	0	11.2	---	27	NE	3	15	12	3	3.6	80	---		
Port Arthur	5	1014.9	1015.6	89	66	77.4	-.8	94	1	55	4	14	0	65	78	1.09	---	.45	6	2	0.0	0	8.5	NE	---	---	---	13	8	9	4.2	---	---		
San Angelo	1903	949.5	1015.6	87	63	75.0	-.8	107	1	53	23	15	0	55	58	.89	-2.04	.38	5	3	0.0	0	8.6	E	*34	NNE	1	20	5	5	3.4	---	---		
San Antonio	782	990.9	1015.4	89	66	77.5	-1.5	101	1	58	28	14	0	60	62	3.02	-.03	1.78	5	2	0.0	0	7.4	E	49	NE	17	21	5	4	2.9	83	---		
Victoria	109	1008.3	1015.0	89	68	78.6	-2.1	98	2	59	27	15	0	66	76	6.15	+2.54	3.79	6	6	0.0	0	6.6	---	55	N	18	12	6	4	2.9	83	---		
Waco	504	997.6	1015.7	91	67	79.0	-.0	102	1	54	28	22	0	58	54	.73	-2.21	.50	2	1	0.0	0	7.1	NE	---	---	---	21	4	5	2.9	---	---		
Wichita Falls	1027	979.7	1015.8	84	64	77.8	-.3	101	1	56	2	22	0	50	44	.03	-2.79	.02	2	1	0.0	0	8.3	SE	*28	N	1	18	7	5	2.9	---	---		
UTAH																																			
Milford	5028	848.3	1015.7	83	46	64.4	+3.3	95	3	29	12	6	2	---	---	.45	+0.05	.42	2	1	0.0	0	---	---	---	---	---	18	7	4	5	3.3	---	---	
Salt Lake City	4227	867.3	1013.6	83	53	68.1	+5.4	95	5	40	14	6	0	40	40	.02	-.96	.02	1	4	0.0	0	9.9	SE	61	W	3	22	4	4	2.5	87	---		
VERMONT																																			
Burlington	331	1002.7	1017.3	72	51	61.7	+1.4	87	11	36	27	0	0	53	76	2.26	-1.22	.64	11	3	0.0	0	9.2	SSW	32	S	18	10	7	13	5.6	47	---		
VIRGINIA																																			
Cape Henry CO	16	1017.6	1018.3	78	68	73.1	+1.3	92	2	56	29	3	0	---	---	1.34	-1.52	.61	5	3	0.0	0	13.1	---	33	N	23	14	8	8	4.4	74	---		
Lynchburg	947	986.1	1019.9	77	66	66.3	+1.4	92	14	45	28	2	0	57	75	1.79	-1.52	.98	6	3	T	T	6.9	N	26	S	2	14	7	9	4.7	70	---		
Norfolk CO	11	1015.6	1019.0	80	67	72.5	+1.9	97	14	56	28	6	0	---	---	2.36	-.87	.98	6	2	0.0	0	9.5	---	26	S	1	14	7	9	4.0	70	---		
Norfolk	25	1018.0	1019.0	83	67	71.9	+2.9	93	13	51	28	0	0	62	74	3.05																			



## CLIMATOLOGICAL DATA

Table 2--Continued

SEPTEMBER 1952

State and station	Elevation (ground)	Pressure		Temperature										Precipitation										Wind				No. of days							
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	.01 inch or more	With thunderstorms	Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		to sunset)								
												Max. 90° F. or above	Min. 32° F. or below								In.	In.			In.	In.	M. p. h.	M. p. h.	Speed	Direction	Date	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunrise
	Ft.	Mb.	Mb.	*F.	*F.	*F.	*F.	*F.	*F.	*F.	*F.		*F.	%	In.	In.	In.	In.	In.	In.	In.	M. p. h.		M. p. h.			0-3	4-7	8-10	0-10	%				
PACIFIC AREA																																			
Canton Island	8	1010.2	1010.6	91	78	84.6	----	97	13	74	12	22	0	72	71	0.80	----	0.25	7	0	0.0	0	-----	-----	-----	-----	8	15	7	5.2	--				
Hilo	28	1014.2	1015.7	81	67	74.0	----	84	12	64	19	0	0	66	79	5.86	----	1.21	22	0	.0	0	5.4	WSW	19	SE	9	1	12	17	7.9	43			
Honolulu CO	12	-----	-----	83	73	77.8	-0.4	84	11	71	17	0	0	-----	-----	.60	-0.68	.39	10	0	.0	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----			
Honolulu	7	1015.2	1015.9	84	73	78.4	----	86	28	69	21	0	0	65	66	.27	----	.20	4	0	.0	0	11.7	ENE	35	NE	6	12	16	2	4.4	79			
Koror	94	1004.7	1008.6	86	75	80.7	----	90	20	72	*1	1	0	-----	-----	14.92	----	4.37	25	8	.0	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----			
Lihe	115	1010.8	1016.0	84	72	77.6	----	88	*29	65	29	0	0	68	74	1.07	----	.63	11	1	.0	0	11.4	NE	25	E	8	8	17	5	5.1	71			
Moan (Truk Group)	3	1010.8	1011.1	86	75	80.6	----	88	*1	73	2	0	0	-----	-----	11.98	----	2.24	27	1	.0	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----			
Ponape	112	1006.8	1011.9	89	72	80.2	----	93	30	70	17	12	0	-----	-----	14.81	----	2.58	30	2	.0	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----			
Wake Island	11	1012.5	1013.2	89	79	83.8	----	91	11	73	26	1	0	75	76	17.66	----	15.00	17	1	.0	0	11.1	E	-----	-----	-----	6	13	8	5.4	--			
Yap	51	1007.8	1009.9	88	75	81.3	----	91	24	71	8	12	0	-----	-----	15.67	----	3.33	21	3	.0	0	-----	-----	-----	-----	-----	0	3	27	9.4	--			
WEST INDIES																																			
San Juan CO	47	-----	-----	86	75	80.3	-.2	92	16	71	14	1	0	-----	-----	6.48	+.57	2.27	18	12	.0	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----			
San Juan, P.R.	9	1011.5	1013.5	87	74	80.7	----	92	16	71	14	2	0	73	81	7.82	----	2.58	19	12	.0	0	8.4	SSE	49	E	23	6	15	9	5.7	65			
ALASKA																																			
Anchorage	134	1003.4	1008.4	55	37	46.2	-1.8	63	*2	27	*7	0	6	41	83	2.32	-.39	.87	18	1	.0	0	4.3	NE	29	SW	1	4	5	21	7.8	40			
Annette Island	110	1009.8	1014.0	59	48	53.1	-.7	72	*21	41	5	2	0	50	89	13.62	+4.03	5.04	19	0	.0	0	11.8	SE	*34	SE	14	3	4	23	8.3	--			
Barrow	22	1018.3	1018.8	31	27	29.0	-1.8	40	20	16	30	0	29	27	92	.12	-.42	.04	7	0	1.2	T	13.2	E	36	SE	24	1	2	27	9.5	--			
Bethel	21	1008.5	1010.0	51	38	44.3	-1.0	59	*24	27	18	0	5	41	89	1.90	-1.11	.77	13	0	T	0	9.1	N	*21	N	2	3	7	20	7.7	--			
Cordova	40	1006.4	1008.2	56	39	47.2	-.6	64	24	27	8	0	4	42	82	8.59	-7.69	2.89	18	0	.0	0	3.5	ENE	*25	ENE	24	5	5	20	7.8	--			
Fairbanks	436	992.9	1010.1	51	34	42.6	-1.4	66	22	20	7	0	10	34	73	1.73	+.76	.61	12	0	2.6	2	5.2	NNW	*20	NE	24	4	2	24	8.4	--			
Galena	120	1005.4	1010.3	49	33	40.7	-2.3	60	1	14	30	0	13	34	77	1.23	-.38	.45	12	0	.0	0	6.4	N	*22	SW	2	5	2	23	7.8	--			
Gambell	25	1012.5	1013.7	44	38	40.8	+.2	48	11	33	30	0	0	38	88	.57	-1.49	.17	9	0	.0	0	15.5	NNE	*35	NNE	29	1	3	26	8.9	--			
Juneau	15	1010.8	1011.6	54	43	48.7	+.1	63	1	30	8	0	2	46	90	10.84	+4.26	3.17	25	1	T	T	8.1	E	38	SE	14	1	0	29	9.4	13			
Kotzebue	10	1011.9	1012.5	46	35	40.2	-.5	52	1	21	30	0	8	36	85	.35	-.63	.19	4	0	.0	0	10.0	E	*36	W	2	7	6	17	6.6	--			
McGrath	334	996.6	1009.8	50	34	42.2	-1.9	61	23	22	7	0	11	37	84	1.97	-.43	.87	11	0	2.0	1	5.0	N	*23	SSW	2	4	2	24	8.0	--			
Nome	13	1011.2	1011.9	49	34	41.4	-.3	55	*13	26	30	0	11	36	79	1.55	-1.38	.49	10	0	T	0	10.3	NE	31	NE	29	5	8	17	7.2	31			
Northway	1713	946.8	1010.0	49	33	41.0	-1.5	67	22	18	7	0	11	35	82	.86	-.47	.34	12	0	T	T	6.1	NW	*20	NNW	5	1	4	25	8.9	--			
St. Paul Island	22	1012.2	1013.4	47	41	44.0	-1.2	51	9	28	30	0	1	40	88	1.05	-2.45	.50	15	0	.0	0	-----	-----	-----	-----	-----	0	4	26	9.3	--			
Umiat	337	1007.1	1020.3	33	23	28.0	-4.2	43	*1	12	29	0	30	25	88	.61	+.23	.35	13	0	5.8	3	9.0	ESE	-----	-----	-----	1	3	26	9.0	--			
Yakutat	28	1008.1	1009.7	55	42	48.2	-.7	64	23	27	8	0	3	46	90	11.97	-3.86	2.15	23	0	.0	0	8.8	ESE	*30	SE	13	2	3	25	8.8	--			

Data from airport unless otherwise specified. CO indicates data from city office.

\* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

° Temperature data based on 26 days' record. Pressure data on 27 days'. Wind data on 27 days'. Sky Cover on 27 days', and Precipitation on 30 days' record with amounts estimated on 4 days.

@ Elevation 1151 until September 15, 1952.

# Max. 70° F. or above for Alaskan Stations.

+ Other dates also.

† Estimated.

‡ Peak gust.



## HEATING DEGREE DAYS

(Base 65°F.)

SEPTEMBER 1952

Table 3

State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month
	This month	Period July through this month	Period July through this month			This month	Period July through this month	Period July through this month			This month	Period July through this month	Period July through this month			This month	Period July through this month	Period July through this month	
ALABAMA					IOWA					NEW JERSEY (Cont'd.)					TEXAS (Cont'd.)				
Birmingham	1	1	6		Burlington	81	86	88		Trenton (CO)	29	29	66		Big Spring	16	17	11	
Mobile (CO)	0	0	1		Charles City (CO)	141	158	196		NEW MEXICO					Brownsville	0	0	0	
Mobile	0	0	0		Davenport (CO)	59	64	97		Albuquerque	13	13	23		Corpus Christi	0	0	0	
Montgomery (CO)	0	0	3		Des Moines	77	81	113		Clayton	59	65	75		Dallas	0	0	5	
Montgomery	0	0	4		Dubuque	153	175	142		Raton	148	161			Del Rio	0	0	1	
ARIZONA					Keokuk (CO)	26	26			Roswell	14	17	26		El Paso	0	0	6	
Flagstaff	199	306	342		Sioux City	84	86	142		NEW YORK					Ft. Worth	0	0	5	
Phoenix (CO)	0	0	0		KANSAS					Albany	130	143	150		Galveston (CO)	0	0	0	
Phoenix	0	0	0		Concordia (CO)	29	29	71		Bear Mountain (CO)	103	153			Galveston	0	0	0	
Prescott	20	20			Dodge City	25	26	62		Binghamton	168	209	204		Houston (CO)	0	0		
Tucson	0	0			Goodland	67	90	99		Buffalo	123	138	174		Houston	0	0	1	
Winslow	13	13			Topeka (CO)	25	25	59		New York (CO)	13	14	55		Laredo	0	0		
Yuma	0	0	0		Topeka	33	33			La Guardia Field	10	10			Lubbock	23	27		
Yuma	0	0	0		Wichita	15	15	43		Oswego (CO)	110	116	198		Palestine (CO)	0	0	4	
ARKANSAS					KENTUCKY					Rochester	109	123	170		Port Arthur (CO)	0	0	1	
Ft. Smith	3	3	12		Lexington	35	36	55		Schenectady	111	119			Port Arthur	0	0		
Little Rock	2	2	11		Louisville (CO)	15	15	38		Syracuse	103	118	193		San Angelo	0	0		
Texarkana	0	0			Louisville	31	31			NORTH CAROLINA					San Antonio	0	0	1	
TEXARKANA					Pikeville (CO)	4	4			Asheville (CO)	38	39	50		Waco	0	0		
CALIFORNIA					LOUISIANA					Asheville	68	79			Wichita Falls	0	0		
Bakersfield	7	7	2		Baton Rouge	0	0	2		Charlotte	6	6	26		UTAH				
Beaumont (CO)	15	15			Lake Charles	0	0			Greensboro	21	21	33		Milford	87	87		
Bishop	28	28	37		New Orleans (CO)	0	0	1		Hatteras	0	0	1		Salt Lake City (CO)	19	19	100	
Blue Canyon	125	133			New Orleans	0	0			Haleigh (CO)	7	7	21		Salt Lake City	36	36	88	
Burbank	5	5			Nat. Airport, Moisant	0	0			Raleigh	15	15			VERMONT				
Eureka (CO)	273	845	816		Shreveport	0	0			Wilmington	0	0	5		Burlington	143	162	260	
Fresno	16	16	5		MAINE					Winston-Salem	14	14			VIRGINIA				
Los Angeles (CO)	0	0	7		Caribou	313	422			NORTH DAKOTA					Cape Henry (CO)	0	0	8	
Los Angeles	14	44			Eastport (CO)	221	371	567		Bismarck	146	195	310		Lynchburg	42	46	43	
Mt. Shasta (CO)	88	112			Greenville (CO)	293	404	497		Devils Lake (CO)	207	285	409		Norfolk (CO)	0	0	9	
Oakland	25	132	222		Portland	185	215	258		Fargo	166	217	309		Norfolk	7	7		
Red Bluff	7	7	12		MARYLAND					Grand Forks	205	282	366		Richmond (CO)	11	11	28	
Sacramento (CO)	9	9	10		Baltimore (CO)	8	8	36		Pembina	159	231			Richmond	19	20		
Sacramento	11	11			Baltimore	27	28			Williston (CO)	151	231	372		Roanoke	40	40	50	
Sandberg (CO)	48	48			Frederick	68	75			OHIO					WASHINGTON				
San Diego	1	2	16		MASSACHUSETTS					Akron	116	138	144		Ellensburg	99	177		
San Francisco (CO)	128	537	508		Boston	62	64	120		Cincinnati (CO)	22	22	64		Kelso	142	281		
San Francisco	83	316	373		Milton	96	113			Cincinnati	62	63			North Head (CO)	233	718	675	
San Jose	17	28			Nantucket	113	123	121		Cleveland (CO)	64	72	114		Olympia	164	352		
Santa Catalina	26	56			Pittsfield	192	248			Cleveland	79	88			Port Angeles	266	803		
Santa Maria	88	286			MICHIGAN					Columbus	67	72	77		Seattle (CO)	88	157	231	
COLORADO					Alpena (CO)	183	258	363		Dayton	69	73	86		Seattle	178	354		
Alamosa	274	359			Detroit	95	103	144		Sandusky (CO)	74	74	93		Spokane	100	167	243	
Colorado Springs	120	150			Escanaba (CO)	243	364	394		Toledo	94	105	127		Stamper Pass (CO)	286	617		
Denver	68	91	141		Grand Rapids (CO)	107	128	156		Youngstown	123	156			Tacoma (CO)	139	271	336	
Grand Junction	14	14	59		Grand Rapids	127	153			OKLAHOMA					Tatoosh Island (CO)	298	928	923	
Pueblo	53	63	93		Lansing	156	186	220		Oklahoma City (CO)	4	4	22		Walla Walla (CO)	34	36	103	
CONNECTICUT					Marquette (CO)	215	354	443		Oklahoma City	4	4			Yakima	80	144	152	
Bridgeport	41	43			Muskegon	133	171			OREGON					WEST VIRGINIA				
Hartford	73	80	125		Sault Ste. Marie	249	366	487		Baker (CO)	132	236	355		Charleston	47	48		
New Haven	68	73	102		Ypsilanti	103	110			Baker	199	337			Elkins	168	182	159	
DELAWARE					MINNESOTA					Burns (CO)	122	178			Huntington (CO)	24	24		
Wilmington	32	36			Duluth (CO)	281	438	448		Eugene	82	137			Perkersonburg (CO)	54	57	66	
DIST. OF COLUMBIA					Duluth	278	427			Mechan	174	383			Petersburg	78	87		
Washington (CO)	14	14	45		International Falls	323	509			Medford	36	40	110		WISCONSIN				
Washington	19	19			Minneapolis	145	156	194		Pendleton	57	73			Green Bay	213	267	234	
FLORIDA					Rochester	190	232			Portland (CO)	49	69	158		La Crosse	133	142		
Apalachicola (CO)	0	0	0		St. Cloud	213	267	323		Portland	66	66			Madison (CO)	127	140	176	
Daytona Beach	0	0	0		St. Paul	138	149	200		Portland	66	66			Madison	149	170		
Fort Myers	0	0	0		MISSISSIPPI					Roseburg (CO)	50	65	160		Milwaukee (CO)	92	110	160	
Jacksonville (CO)	0	0	0		Jackson	0	0	5		Salem	87	153			Milwaukee	126	144		
Jacksonville	0	0	0		Meridian	0	0	5		Sexton Summit (CO)	135	274			WYOMING				
Key West (CO)	0	0	0		Vicksburg (CO)	0	0	6		Troutdale	67	127			Casper	121	185		
Key West	0	0	0		MISSOURI					PENNSYLVANIA					Cheyenne	150	238	331	
Melbourne	0	0	0		Columbia	51	51	67		Allestown	65	72			Lander	95	152	328	
Miami (CO)	0	0	0		Kansas City	25	26	53		Erie (CO)	85	94	125		Rock Springs (CO)	151	191		
Mt. Airport, Hialeah	0	0	0		St. Joseph	40	40	69		Harrisburg	48	52	78		Rock Springs	153	226		
Miami Beach	0	0	0		St. Louis (CO)	10	10	39		Park Place (CO)	127	155			Sheridan	111	182		
Orlando	0	0	0		St. Louis	29	29			Philadelphia (CO)	10	10	38		ALASKA				
Pensacola (CO)	0	0	1		Springfield	35	35	52		Philadelphia	21	21			Anchorage	555	1091		
Tallahassee	0	0	0		MONTANA					Pittsburgh (CO)	38	41	77		Annette Island	352	809		
Tampa	0	0	0		Billings	75	131			Pittsburgh	73	83	108		Barrow	1075	2630	2642	
West Palm Beach	0	0	0		Butte	332	652			Reading (CO)	32	32	67		Bethel	615	1331	1353	
GEORGIA					Clawson (CO)	126	159			Seranton (CO)	94	108	144		Cordova	527	1340		
Albany	0	0	1		Great Falls	120	256			Williamsport	93	103	113		Fairbanks	665	1159	1128	
Athens	0	0	0		Havre (CO)	122	221	355		RHODE ISLAND					Galena	722	1269		
Atlanta (CO)	2	2	12		Helena	174	283	400		Block Island	64	66</							



# SEVERE STORMS

SEPTEMBER 1952

Table 4

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Pennsylvania, south-central and eastern counties	Aug. 31-Sept. 1						Thousands	Thousands	Rain and wind	Weakening remnants of hurricane produced rains of 2 to 5 inches or more in 24 hours; heaviest over Franklin-Monroe County areas. Low areas temporarily inundated by sudden downpour; underpasses flooded with up to 5 feet of water; cellars and many streets flooded. Weight of water on fruit in orchards added to damage caused by winds with gusts of 43 m.p.h., which knocked down fruit and split trees in Franklin and Adams Counties. In Harrisburg area, sink holes developed following heavy rains; trees felled and utility lines downed.
Washington, D. C. and area	1	Midnight to 6 a.m.					\$500,000		do	Damage mostly from flooding which in some low sections reported to be worst in many years. Some damage to trees and wires. Storm of tropical origin; accompanied by tornadoes in Virginia before midnight of August 31.
Shawnee and southern Jefferson Counties, Kans.	1	4 a.m.				1	2,500		Wind and electrical	Severe wind occurred in Topeka area, extending eastward into Jefferson County, in connection with general rain and thunderstorm activity over northern portion of State. Falling tree limbs damaged power lines in Topeka. Turkey shed blew over on man, causing injury. Lightning 5 miles northeast of Grantville killed 4 cows and 4 calves. Damage by lightning, \$2,000; by wind, \$500.
Red Boiling Springs, Macon County, Tenn.	1	During night					3,250		Electrical	A dwelling house struck by lightning and burned. All household furnishings lost.
Massachusetts, Rhode Island, and Connecticut	1	All day					\$5,000		° Wind	Low pressure system, remnant of hurricane "Able", moved into southern New England on 1st and passed over Maine on 2d. It brought generally heavy rains to New England, but winds up to 50 m.p.h. in gusts were confined to southern and southeastern coasts and southern interior. 4 small boats torn from moorings and damaged; slight "drops" of fruit, and minor crop damage reported from scattered localities.
Central Maryland and over Chesapeake Bay	1	A.m.				1	\$500,000		° Wind and rain	Remains of hurricane moving northward from South Carolina caused heavy rains, flooding wide sections, and sinking small craft in Bay and harbors. Flash flood at Ellicott City alone caused damage of at least \$500,000 to homes and business establishments. 1 man killed by electric shock while mopping up flood waters in theater. Automobiles carried by water down hills, crashing at bottom. Boats and barges in harbor and tributaries ripped from moorings. Tanker dragged anchor to smash into dredge. 3-masted schooner driven aground. Railway and bus travel upset; tracks washed out. 1 garage washed away. Power and telephone lines down. Trees felled. Crops damaged mostly due to rains (mostly corn and fruit plants).
Danville, Ky.	1	A.m.					15,000	\$4,000	Wind	Many trees blown down, disrupting utility services. 3 barns destroyed or damaged. 1 auto damaged. Tobacco and corn in fields, as well as tobacco in barns damaged. Buildings damaged by falling trees.
Grand Rapids, Mich.	1	11 a.m.					2,000		Wind, rain, and electrical	Thunderstorm disrupted telephone and electric services, uprooted trees, and flooded some streets. Winds reached 52 m.p.h. and 3/4 inch of rain fell in 15 minutes. At height of storm, visibility reduced to 1/8 mile and motorists forced to creep along and use lights.
Michigan, southern portion	1	During day			4	1	2,000	See remarks	do	Lightning struck and killed swimmer in Bald Eagle Lake in Oakland County. Men killed by lightning at Croswell. 2 deaths occurred from drowning in Saginaw Bay when high winds upset boat. The injury occurred to picknicker at Independence Lake in Wshtenaw County. Numerous cottages and cars damaged at White Fish Lake. Steel top of Sand Lake grain elevator blown off. In Howard City roof of school-bus garage blown off. Apple crop suffered 5 percent loss.
Marshall and McCracken Counties, Ky.	1	P.m.				5	50,000	20,000	Wind and rain	90 percent of damage caused by wind. Many roofs, signs, TV antennae, chimneys, and trees blown down. Several houses damaged by falling trees. Telephone and electric services disrupted. Corn and tobacco damaged.
Anderson County, Ky.	1	P.m.				1	50,000	150,000	Wind and hail	75 percent of damage caused by wind and 25 percent by hail. Dark and Burley tobacco riddled by hail or flattened by wind. Corn crop damaged. Many homes damaged. Trees blown over, damaging utility lines.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

SEPTEMBER 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Edmondson County, Ky.	1	P.m.					\$1,500		Wind	Barn near Ollie completely destroyed and 1 near Stockholm damaged.
Kentucky, extreme northern portion	1	P.m.				6	200,000		Wind and electrical	Buildings unroofed by wind. Plate-glass windows shattered, and trees blown down. Houses damaged by falling trees. Utility services disrupted. Light- ning struck clubhouse, causing fire which resulted in damage to building and contents estimated at \$160,000.
Detroit, Mich.	1	4 p.m.			1	1	15,000		Wind, and electrical	Winds reaching 50 m.p.h. totally demolished 6 air- craft, while 11 others received minor damage at Detroit Wayne-Major Airport. Damage estimated at \$12,000. A spectator at air show killed by light- ning. Rain amounted to 0.80 inch between 4 and 4:30 p.m. and flooded some underpasses. Some dam- age to utilities. Reported injury result of lightning.
Fort Worth, Tex.	1	5:45 p.m.	*3	10	1	14	Several million		Wind, possibly tornado, and hail	At Carswell Air Force Base, 35 B-36 planes damaged, some severely; and \$1,000,000 damage to various buildings and installations. Anemometer reported to have indicated 90 m.p.h. before being smashed by debris. Several houses damaged; an amusement park at Lake Worth damaged. At Lake Worth Village, a drive-in theater damaged and utility poles and lines broken. Storm accompanied by light hail, which did no damage. (Storm reported by Carswell AFB as a tornado).
Dyess, Ark.	1	8 p.m.					25,000		Electrical	High School struck by lightning; resultant fire destroyed building.
Cincinnati area, Ohio	1	8 p.m.				3	Several thous- ands		Wind and rain	Storm pulled down wires and trees, blew roofs off several buildings, broke many windows, sank 3 boats, and caused injuries to at least 3 persons. Gusts reached 50 m.p.h. Winds accompanied cold front that moved in from west and northwest.
Nassau Coun- ty, N. Y.	1						See remarks		do	Heavy rain and winds, reaching speeds of 50 m.p.h., left 27,000 homes without electric services, on ac- count of water soaked transformers and power lines broken by falling trees.
Salt Lake Airport, Utah	3	Evening					See remarks		Winds	Scattered thundershowers, but very little rain. At 8:44 p.m. a sudden gust of wind with speeds reach- ing briefly 60 to 70 m.p.h. hit airport, causing damage to a few small airplanes; only a few drops of rain occurred. High winds same evening in Bountiful area. Previously a pilot reported a line of thun- derstorms extending from Tooele northward.
Gallatin County, Mont.	5	1:30 p.m.	*5-8	40				Consider- able	Hail	Path of storm began near Norris and ended in Bridger Mountains northeast of Bozeman. Loss of 3 to 5 bushels of grain per acre over path in unharvested fields.
Four Corners to Crow Peak, S. Dak.	6-7	Near mid- night, 6th	*20	35					Electrical	Thunderstorms with brilliant displays of lightning, but little or no precipitation in Black Hills. Lightning strikes started 30 fires in 20 x 35 mile forest area. These 30 fires were an all-time high in past 20 years, in any 24-hour period, of Forest Service records. All fires brought under control by noon on 8th.
Keyenta, Ariz.	6	Afternoon							do	3 men dazed by lightning strike.
Garden City, Kans.	9	8 p.m.					4,000		do	Lightning set fire which destroyed pump house and water pump at Garden City Air Base.
Joplin, Mont.	9	10 p.m.	*2-3					\$1,000	Hail	Damage to green or late wheat.
Cache Coun- ty, Utah	10	Afternoon						15,000	Winds	Most damage to fruit crop.
Columbus (southwest of), Mont.	10	6:30 p.m.	*1					Consider- able	Hail	Damage to oats, barley, and third cutting of alfalfa
Yellowstone County, Mont.	10	6:30 p.m.	*2-4	10			50,000	125,000	Hail, rain, electrical, and wind	Storm area around Laurel to northeast of Billings. Damage to corn, sugarbeets, and gardens. Lightning struck several buildings. Water flooded basements.
Butte, Mont.	11	Afternoon			1	1			Electrical and hail	Man killed by high tension wire which lightning knocked to ground during storm. Another man in- jured when either struck by lightning or from fall slippery roof. Storm broke so fast he could not reach shelter.

See footnotes at end of table.



# SEVERE STORMS

Table 4—Continued

SEPTEMBER 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Winnett, Mont.	11	7:30 p.m.	*10	15			Consider- able	\$30,000	Hail and electri- cal	Hailstones up to 2 inches in diameter, destroyed second cutting of alfalfa and range grass. More than 100 windows broken in Winnett. A 3,300-bale hay stack struck and burned by lightning.
Alaska, southeast- ern portion	13 and 14						\$7,000		Rain	Storm, moving eastward from across gulf of Alaska, caused heavy rain in Juneau area. Dikes along Gold Creek undermined and allowed some washing of nearby dirt and gravel over distance of about 300 feet along bank, about 1/4 mile from creek's outlet.
Summersville and central Nicholas County, W. Va.	14	11 p.m.— 12:30 a.m.					20,000		Electri- cal	One house, 2 miles north of Summersville, struck by lightning and burned. 2 large transformers knocked out by lightning; area without electric service for 7 hours.
Doniphan County, Kans.	16	A.m.					3,000		do	Lightning set fire to barn 2 miles west of Troy, burning it and contents to ground.
Crawford County, Kans.	16	5:35 p.m.	Nar- row		0	0	11,000	0	Wind (possib- le tor- nado)	Severe wind of extremely local nature with tornadic characteristics occurred in southwestern Crawford County, 7 miles northwest of McCune, as squall line moved past. Large barn destroyed, and 12 head of cattle killed. 2 boys narrowly escaped from barn, 1 being picked up by wind twice and deposited unhurt.
Hutchinson, Kans.	16	9 p.m.				5			Electri- cal	5 persons injured by stroke of lightning at Kansas State Fair Grounds; 4 hospitalized.
Nags Head, Dare Coun- ty, N. C.	17	12:30 p.m.	50	1	0	0	20,000		Tornado, water- spout, and rain	Storm came in from Sound, crossed Nags Head Beach, which is a sand bar or bank, moving southeastward, proceeded out to sea, where it was observed to break up. Path on land about 1 mile long. A fully equipped beach cottage totally demolished and 2 others badly damaged, with considerable additional damage to roofs of other buildings and to telephone lines. Heavy rain followed departure of storm.
Little City (about 10 miles east of Madill), Marshall County, Okla.	17	2:50-3:10 p.m.	50	*100			750		Wind	Damage to church and residence; 2 garages demolished.
Binger (4 miles north- east of), Caddo Coun- ty, Okla.	18	1:30 p.m.	Nar- row	Short			600		Whirlwind	Whirlwind damaged 2 barns. Smaller barn, 14 x 24 feet, tossed off foundation and roof damaged. Larger barn, 40 x 60 feet, also damaged. Observed by teach- er and 20 students at rural school 100 yards away. No rain; sky clear; temperature 101°.
Morgan, Men- ard, Sanga- mon, Logan, Macon, De- Witt, Piatt, Champaign, and Vermil- ion Coun- ties, Ill.	18	Afternoon					73,000	500,000	Hail, wind, and rain	Severe thunderstorms, accompanied by hail and high winds, resulted in considerable damage. Crop damage largely to soybean fields by hail. Property damage mostly from high winds and hail. Hailstones size of baseballs reported near Hoopeston.
Oktibbeha County, Miss.	18	4:30 p.m.					8,000	10,000	Wind and hail	Damaged 14 buildings; also corn, soybeans, and cotton.
Indianapol- is, Ind.	18	6:30 p.m.					100,000		Wind and rain	Scores of trees blown over, with many falling upon houses, power lines, automobiles, etc. Roof of lum- ber company picked up by wind and slammed against a house, severely damaging it. TV antennae blown down. About 99 percent of damage was by wind.
Dayton area, Ohio	18	Evening				16	Several thous- ands		do	Storm with 50 m.p.h. winds blew mission tent inside out at Dayton. Of 2,000 persons inside tent attend- ing revival service, 16 injured, most received bruises and cuts. Gale felled trees and knocked out power lines. 15 fires within an hour. Fallen trees blocked highways and trapped motorists in their autos.
Hanover, Pa.	18	10:15 p.m.					25,000		Electri- cal	Lightning struck and fired barn near Hanover, de- stroying it and its contents, and 3 adjacent small buildings.
Portsmouth and vicin- ity, N. H.	19	9:30-10 a.m.	500	15	0	0	*200,000		Wind (tor- nadic), electri- cal, and rain	Severe thunderstorm moved northeastward from North Hampton-Greenland, N.H., area about 9:30 a.m.; passed through Portsmouth, N.H., about 9:45 a.m.; blew out to sea off Kittery Point, Maine, about

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

SEPTEMBER 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Portsmouth and vicinity, N. H. (Cont'd.)	19									10 a.m. Some indications of tornadic action along path of greatest destruction, but no clearcut reports of tornado funnel. Bulk of property losses in Portsmouth, where \$32,000 damage occurred to grounds and buildings of Naval Shipyard; fallen trees by hundreds blocked streets and damaged automobiles and buildings; utility lines downed; roofs, porches, etc. damaged by wind estimated at 90 m.p.h. in gusts, but no reliable wind measurements available. Several barns and garages demolished; apple orchards considerably damaged; minor damage to small craft and fishing traps. Lightning damaged 1 building; heavy rain poured in through smashed roofs and flooded cellars and streets.
Springfield and vicinity, Mass.	19	11 a.m. to noon					\$10,000		Wind, rain, and elec- trical	Thunderstorm with intense rain and winds estimated at 50 m.p.h. in gusts tore down electric and telephone wires, uprooted trees, and flooded buildings. 3 automobiles damaged by fallen trees; 1 small house fire caused by lightning; some damage to corn fields in South Longyard.
Somers Point, Atlantic County, N. J.	19	11:45 a.m.	200	1		4	150,000		Wind	18 houses, a schoolhouse, a large garage, and a greenhouse sustained considerable damage. 1 house and garage demolished. Power service interrupted for several hours.
Putnam and vicinity, Conn.	19	3 p.m.	1,000	5		1	\$25,000		do	During thunderstorm, strong winds lasting about 2 minutes uprooted trees and damaged buildings along path from Pomfret to Thompsonville, passing through northern part of Putnam where most losses occurred. Part of grandstand at Recreation Park carried away; about 100 dwellings and poultry houses suffered relatively small damage; minor damage to corn crop; 1 woman slightly injured by flying glass.
Supai, Ariz.	20-21		*1				2,500	\$300	Rain	Heavy rains fell on Hualapai and Gatarack drainage areas. Runoff concentrated in washes running through village of Supai. Gardens washed out, with severe damage to ditches. Portions of trail from top of canyon washed out.
Marana, Ariz.	20	Afternoon					3,000		Wind and rain	Very high winds accompanied severe thunderstorm which covered area of about 20 mile radius of Marana Air Base. Winds damaged porches on a number of barracks. Several cotton trailers overturned, and widespread damage to television aerials. Most damage attributed to high winds.
Sahuarita, Ariz.	21	Afternoon	*10				1,000	4,000	Hail, wind, and rain	High winds, hail, and heavy rain covered about a 10-mile strip from south of Tucson to Sahuarita. Damage by wind estimated at \$250; by hail, \$500; by heavy rain, \$4,250.
Chandler (near), Ariz.	21	4:15-4:25 p.m.	*3	8			7,500	150,000	Hail	Thunderstorm accompanied by hail struck strip of cotton land southwest of Chandler causing considerable damage to nearly mature crop. Hailstones reached golf ball size at maximum activity. Many composition roofs damaged in Chandler. Path of destruction began about 8 miles southwest of Chandler, then running in northeastward direction to and through Chandler's corporate limits.
Hatteras and southward, N. C.	22							See remarks	Reins	Uncommonly heavy rains fell over coastline from Hatteras southward, resulting from an offshore storm. Winds did not reach destructive speeds, and damage mostly resulted from degradation of quality of mature but unharvested crops.
Puerto Rico	22-23					5	688,400	252,000	Rains and floods	Heavy to excessive rains occurred in Puerto Rico, greatest flood damages in Ponce district.
Benton Har- bor and St. Joseph, Mich.	22	Afternoon				0	0	0	Water- spouts and hail	Several waterspouts observed from Benton Harbor Market and St. Joseph over Lake Michigan. One was seen 10 miles west of St. Joseph Coast Guard Station at 2 p.m. moving northeastward. Another at 5 p.m. observed 3/4 to 1 mile away from St. Joseph pumping station. This funnel, with diameter of about 25 feet at lower end, withdrew to a dark cloud upon reaching shore. Water rose higher than light house on pier. At Benton Harbor Market 4 such clouds were observed during afternoon. It was a cloudy afternoon with scattered showers. About the same time a narrow streak of hail passed diagonally across southern Berrien County in northeasterly direction.

\* Miles instead of yards.

\*\* Yards instead of miles.

° Crop damage included with other property damage.



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

SEPTEMBER 1952

The most important flooding during September occurred in the West Gulf of Mexico drainage where major flooding occurred along the Guadalupe River, Cibolo Creek and in the lower portions of the San Antonio River in Texas. A record high stage occurred on the Pedernales River at Johnson City, Tex.

**ATLANTIC SLOPE:**—Heavy rains occurred along the Atlantic Coast between August 30th and September 2d as a hurricane which passed inland in South Carolina moved from the Carolinas through Virginia, District of Columbia, Maryland, northeastward through Massachusetts.

These heavy rains caused substantial rises in the Tulpehocken and Schuylkill Rivers in Pennsylvania. The Schuylkill reached a stage of 11 feet at Reading, Pa., 2 feet below flood stage. Local flooding was experienced on the Tulpehocken River, especially in low lying meadowlands.

Slight to moderate rises occurred in Juniata and Susquehanna Rivers in Pennsylvania due to the heavy rains which ranged up to 6 inches in 36 hours. However, amounts were comparatively light in the headwaters, with most of the precipitation falling in the lower basin. Some local flooding occurred in lowland areas with little damage reported.

A moderate rise resulted in the Monocacy and in the lower Potomac Basins where the precipitation averaged between 3 and 4 inches. The only flooding reported was along Rock Creek and the Anacostia River in the Washington, D. C. area. Strong southeasterly winds caused tides 3 feet above normal in the Washington area on September 1. The highest tide was 6.4 feet, 0.6 foot below flood stage, at 6 a.m. E. D. T.

Flood stage was exceeded on the James River at Columbia, Va., on the 2d from the heavy rains (1.5 to 3.6 inches) accompanying the hurricane.

The Roanoke, Neuse and Cape Fear Rivers exceeded flood stage from the heavy rains on Aug. 30 and 31. The rainfall during the 36-hour period averaged 2-3/4 inches in the Dan River Basin; 3-1/2 inches on the Roanoke; 2 inches on the Tar; 3 inches on the Neuse; and 4 inches on the Cape Fear River Basin. No extreme damage was reported. However, flooding along the lower Cape Fear is known to have caused some economic loss to shipping operators due to the closing and non-operation for several days of locks along the lower Cape Fear. Likewise flooding is believed to have caused some financial loss to farmers along the Cape Fear.

The heavy rains of 2 to 6 inches which occurred over the Pee Dee and Lynches Rivers in South Carolina due to the tropical storm of Aug. 30-31, 1952, caused overflows along these streams. The Pee Dee River rose abruptly at Cheraw, S. C., from 10 feet to 39 feet, 9.1 feet above flood stage. The Lynches River rose sharply at Effingham, S. C., on the 5th from 2.5 feet below flood stage to 2.6 feet above from the heavy rains of 5 days previous (3 to 5 inches).

**Missouri Basin.**—A record low stage of 0.4 foot occurred on the Kansas River at Wamego, Kans., on Sept. 28-30. The previous low stage at this point was 0.5 foot on Aug. 2, 1940. At Fort Riley, Kans., the previous record low stage of 4.6 feet on

Nov. 23, 1949 was also broken with a 2.0 feet stage on Sept. 30. A record low stage was also recorded on the Republican River at Concordia, Kans., with a stage of 1.05 feet on Sept. 28. The previous low stage was 2.0 on Sept. 26-27, 1945.

**Arkansas Basin.**—The mean river stage of the Arkansas River at Tulsa, Okla., was 0.0 foot for September which was 2.2 feet below normal. The only other year with a stage as low (0.0 foot) was September 1931. The lowest daily stage at Tulsa this month was -0.2 foot while in September 1931 the lowest stage was -0.6 foot. The mean stage of the river at Van Buren, Ark., was 3.5 feet, 4.1 feet below the month's normal. This was the lowest September mean stage since September 1939 when 2.9 feet was recorded. A record low monthly mean stage of 2.8 feet was reported at Perkins, Okla.; this was 2.3 feet below the normal stage.

**WEST GULF OF MEXICO DRAINAGE.**—A record stage occurred on the Pedernales River at Johnson City, Tex., on the 12th due to heavy rains which moved up the Guadalupe and Colorado River watersheds from the 8th to the 11th. Flooding also occurred on the San Saba and Llano Rivers in Texas. The highest previous stage at Johnson City was 33 feet and the stage from high water marks by levels during this flood was 43 feet. The outstanding feature of this flood was the rapid rise of Lake Travis (Marshall Ford). Total rise was about 60 feet. Calculations made from frequent readings of levels at the dam indicate a flow of about 600,000 sec. feet for a period of 10 hours. This would have resulted in a crest of about 45 feet at Austin, Tex., whereas the most serious flood ever to occur at Austin was 41.2 feet in 1935 with 481,000 sec. feet when a damage of \$13,000,000 resulted. It is impossible to estimate the damage from this flood if the dams above Austin had not been in use. As it was, the damage was over \$2,000,000.

Major flooding occurred along the Guadalupe River, Cibolo Creek and the lower portions of the San Antonio River. The rainfall occurred in a 49-hour period from about 6 p.m., Sept. 8 to 6 p.m. on Sept. 10 with the heaviest amounts occurring in the last 24 hours of that period. The amount of rainfall ranged upward from 4 to 6 inches over most sections to about 23 inches in a fairly small center between Kerrville, Blanco and Boerne, Texas. Rains of 10-12 inches covered a rather large area. Heavy damage occurred in the upper portions of the Guadalupe River and Cibolo Creek due to the rapid runoff and very rapidly rising creeks and rivers in that section. Preliminary estimates of \$6,000,000 were reported with four lives lost.

The Rio Grande was at near-record low stages and discharge throughout its entire length during September. However, there was sufficient flow of water past Brownsville for the Water District and Water Users below Brownsville to pump water every day during the month except two. This was made possible by the fact that the Courts appointed a Water Master to control the pumping of water available from Rio Grande City downstream to the Gulf.



# FLOOD STAGE DATA

(All dates in September unless otherwise specified)

Table 5

SEPTEMBER 1952

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
	<i>Ft.</i>			<i>Ft.</i>	
ATLANTIC SLOPE DRAINAGE					
James: Columbia, Va.	18	2	2	18.4	2
Roanoke:					
Alta Vista, Va.	18	Aug. 31	2	27.1	1
Randolph, Va.	21	1	4	26.5	2
Neuse:					
Neuse, N. C.	14	Aug. 31	5	†18.5	3
Smithfield, N. C.	13	1	5	20.0	3
Goldsboro, N. C.	14	5	10	†16.4	9
Cape Fear:					
Moncure, N. C.	20	Aug. 31	2	†23.9	1
Fayetteville, N. C.	35	Aug. 31	5	†46.8	2
Lock No. 2, Elizabethtown, N.C.	20	Aug. 31	7	†32.1	4
Lynches: Effingham, S. C.	14	6	8	†16.6	7
Pee Dee:					
Cheraw, S. C.	30	1	3	39.1	1-2
Peedee, S. C.	19	3	10	†23.5	7
WEST GULF OF MEXICO DRAINAGE					
San Saba: San Saba, Texas				36.9	12
Llano: Llano, Texas				33.0	12
Pedernales: Johnson City, Texas				42.5	12
San Antonio: Goliad, Texas	35	12	15	40.0	14
Guadalupe:					
New Braunfels, Texas	20	10	12	32.0	10
Gonzales, Texas	20	12	14	34.3	12
Cuero, Texas	23	13	16	31.0	14
Victoria, Texas	21	14	18	29.5	16

\* Provisional.

† Highest stage reported.

‡ Estimated.



# RADIOSONDE DATA

Average monthly values

SEPTEMBER 1952

Table 20

ALBUQUERQUE, N. MEX. (840 MB.)					ATLANTA, GA. (983 MB.)					BIG SPRING, TEX. (927 MB.)					BISMARCK, N. DAK. (955 MB.)					BOISE, IDAHO (915 MB.)					BROWNSVILLE, TEX. (1013 MB.)					BUFFALO, N. Y. (992 MB.)					
Standard pressure surface (mb.)																																			
Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		
1,629	22.6	34	30	309	20.7	74	30	784	24.3	47	30	505	16.2	59	30	868	19.3	43	29	7	25.8	79	30	221	15.4	80	30	221	15.4	80	30	221	15.4	80	
66				30	161			30	114			30	106			30	93			29	122	25.6	77	30	155			30	155			30	155		
532				30	611	21.1	63	30	571			30	551	16.5	55	30	548			29	581	22.9	75	30	597	16.6	63	30	597	16.6	63	30	597	16.6	63
1,015				30	1,075	18.1	66	30	1,046	24.0	43	30	1,012	17.7	43	30	1,012	22.3	28	29	1,043	20.7	62	30	1,053	14.0	61	30	1,053	14.0	61	30	1,053	14.0	61
1,517				30	1,562	15.2	58	30	1,543	20.5	46	30	1,497	14.5	44	30	1,507	20.0	24	29	1,535	17.9	58	30	1,533	11.3	55	30	1,533	11.3	55	30	1,533	11.3	55
2,045	21.2	26	30	2,074	12.9	46	30	2,063	16.7	52	30	2,006	10.9	49	30	2,025	16.3	26	29	2,052	15.1	49	30	2,037	8.5	54	30	2,037	8.5	54	30	2,037	8.5	54	
2,601	17.0	29	30	2,621	10.4	43	30	2,611	12.7	55	30	2,549	7.0	47	30	2,577	12.2	26	29	2,604	12.0	46	30	2,571	5.6	51	30	2,571	5.6	51	30	2,571	5.6	51	
3,182	11.9	34	30	3,186	7.5		30	3,186	9.1	47	30	3,105	3.5	41	30	3,142	7.9	27	29	3,170	8.9	44	30	3,129	2.4	48	30	3,129	2.4	48	30	3,129	2.4	48	
3,798	6.7	39	30	3,798	4.5	38	30	3,801	5.6	39	30	3,709	1.1	38	30	3,753	3.5	27	28	3,789	5.3	43	30	3,722	1.1	44	30	3,722	1.1	44	30	3,722	1.1	44	
4,448	1.3	44	30	4,441	.8	34	30	4,446	1.1	38	30	4,338	-.2	39	30	4,393	-.8	28	28	4,430	1.0	37	29	4,356	-.4	35	30	4,356	-.4	35	30	4,356	-.4	35	
5,142	-.3	44	30	5,136	-.3		30	5,141	-.3	35	30	5,023	-.8	41	30	5,081	-.5		28	5,133	-.2	34	29	5,038	-.8	29	30	5,038	-.8	29	30	5,038	-.8	29	
5,887	-.8		30	5,883	-.8	39	30	5,888	-.7		30	5,749	-.13	36	30	5,822	-.10		27	5,879	-.6		29	5,769	-.13	30	30	5,769	-.13	30	30	5,769	-.13	30	
6,705	-.12		30	6,702	-.13		30	6,705	-.13		30	6,550	-.19		30	6,626	-.16		26	6,704	-.11		29	6,565	-.18		30	6,565	-.18		30	6,565	-.18		
7,578	-.20		30	7,579	-.20		30	7,587	-.19		30	7,406	-.25	34	30	7,498	-.23		26	7,498	-.17		29	7,430	-.25	30	30	7,430	-.25	30	30	7,430	-.25	30	
8,552	-.27		30	8,556	-.26		30	8,564	-.26		30	8,359	-.33		30	8,461	-.30		26	8,571	-.24		29	8,387	-.32		30	8,387	-.32		30	8,387	-.32		
9,641	-.35		30	9,649	-.34		30	9,659	-.34		29	9,422	-.41		30	9,537	-.39		24	9,673	-.32		29	9,458	-.39		30	9,458	-.39		30	9,458	-.39		
10,885	-.44		29	10,899	-.42		30	10,907	-.43		29	10,634	-.50		30	10,763	-.48		24	10,929	-.42		28	10,681	-.46		30	10,681	-.46		30	10,681	-.46		
12,348	-.53		28	12,358	-.55		30	12,375	-.53		29	12,073	-.54		30	12,208	-.54		23	12,398	-.53		27	12,134	-.54		30	12,134	-.54		30	12,134	-.54		
13,196	-.58		28	13,199	-.60		30	13,223	-.58		29	12,926	-.55		30	13,057	-.57		22	13,298	-.56		26	12,993	-.55		30	12,993	-.55		30	12,993	-.55		
14,155	-.63		28	14,150	-.64		30	14,178	-.63		29	13,902	-.57		30	14,027	-.58		21	14,186	-.64		25	13,974	-.58		30	13,974	-.58		30	13,974	-.58		
15,265	-.67		27	15,250	-.68		30	15,283	-.68		27	15,045	-.59		30	15,164	-.61		19	15,273	-.71		24	15,121	-.62		30	15,121	-.62		30	15,121	-.62		
16,611	-.68		25	16,586	-.68		28	16,615	-.68		26	16,439	-.58		30	16,547	-.61		18	16,589	-.71		23	16,496	-.61		30	16,496	-.61		30	16,496	-.61		
17,953	-.64		21	17,934	-.64		28	17,952	-.66		24	17,842	-.57		30	17,933	-.60		14	17,933	-.60		22	17,890	-.58		30	17,890	-.58		30	17,890	-.58		
18,729	-.60		18	18,704	-.60		28	18,716	-.61		29	19,665	-.56		29	19,738	-.57		13	19,682	-.62		22	19,701	-.57		30	19,701	-.57		30	19,701	-.57		
20,870	-.58		19	20,847	-.57		27	20,852	-.58		19	20,921	-.55		28	20,897	-.56		11	20,892	-.58		22	20,866	-.55		30	20,866	-.55		30	20,866	-.55		
22,290	-.55		17	22,259	-.55		22	22,263	-.55		16	22,250	-.54		22	22,322	-.54		11	22,229	-.56		19	22,296	-.53		30	22,296	-.53		30	22,296	-.53		
24,131	-.51		9	24,092	-.52		15	24,097	-.53		11	24,123	-.52		23	24,184	-.51		7	24,077	-.53		12	24,126	-.51		30	24,126	-.51		30	24,126	-.51		
BURRWOOD, LA. (1015 MB.)					CARIBOU, ME. (994 MB.)					CHARLESTON, S. C. (1016 MB.)					COLUMBIA, MO. (991 MB.)					DODGE CITY, KANS. (927 MB.)					EL PASO, TEX. (882 MB.)					ELY, NEV. (811 MB.)					
Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity		
3	25.1	83	30	191	11.1	81	30	13	21.8	91	23	238	19.8	64	30	792	21.2	42	30	1,195	25.6	30	30	1,906	16.6	29	30	1,906	16.6	29	30	1,906	16.6	29	
134	24.8	79	30	139	7.7		30	154	22.8	82	23	154			30	124			30	63			30	73			30	73			30	73			
590	22.2	74	30	571	12.1	70	29	603	20.7	72	23	600	22.5	44	30	578			30	534			30	506			30	506			30	506			
1,052	19.4	70	30	1,022	9.8	68	30	1,067	18.2	70	23	1,070	19.4	42	30	1,049	22.8	35	30	1,013			30	1,006			30	1,006			30	1,006			
1,542	16.7	65	30	1,491	7.0	68	30	1,556	15.6	67	23	1,559	16.2	41	30	1,543	19.4	37	30	1,516	25.4	26	30	1,499			30	1,499			30	1,499			
2,057	13.9	65	30	2,022	2.2	62	30	2,069	12.9	58	23	2,072	13.0	43	30	2,041	15.7	39	30	2,045	21.4	29	30	2,021	19.6	25	30	2,021	19.6	25	30	2,021	19.6	25	
2,602	11.3	56	30	2,522	-.4	55	29	2,618	9.9	54	23	2,618	10.9	37	30	2,610	11.9	43	30	2,600	16.7	34	30	2,576	15.8	26	30	2,576	15.8	26	30	2,576	15.8	26	
3,172	7.9	56	30	3,070	-.4	55	29	3,179	6.8	49	23	3,181	6.8	34	29	3,178	8.4	37	30	3,181	11.7	40	30	3,153	10.7	31	30	3,153	10.7	31	30	3,153	10.7	31	
3,788	4.4	50	30	3,664	-.7	50	29	3,791	3.7	43	23	3,794	3.2	31	29	3,793	4.8	34	30	3,798	6.8	41	30	3,767	5.3	38	30	3,767	5.3	38	30	3,767	5.3	38	
4,428	1.0	46	30	4,288	-.7	49	28	4,431	-.3	37	23	4,431	-.3		29																				



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Table 20—Continued

JOLIET, ILL. (997 MB.)				LAKE CHARLES, LA. (1015 MB.)				LANDER, WYO. (831 MB.)				LAS VEGAS, NEV. (935 MB.)				LITTLE ROCK, ARK. (1008 MB.)				MAZATLAN, MEXICO (1006 MB.)				MEDFORD, ORE. (967 MB.)					
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	
SURFACE	30	179	15.2	80	30	5	23.6	79	30	1,696	17.2	31	30	660	27.8	26	30	79	21.4	68	27	14	29.4	77	30	401	22.2	49	
1,000	30	151	14.9		30	138	24.9	67	30	77			30	52			30	148	23.0	58	27	71	28.9	77	30	103			
950	30	590	17.9	55	30	597	22.7	61	30	535			30	519			30	596	22.2	51	27	534	25.8	80	30	559	24.6	37	
900	30	1,062	15.1	53	30	1,057	19.6	60	30	1,010			30	997	29.1	22	30	1,064	18.8	52	27	1,003	23.6	78	30	1,023	21.9	37	
850	29	1,534	13.2	47	30	1,547	16.0	64	30	1,502			30	1,501	24.9	23	30	1,552	15.9	49	27	1,501	20.9	71	30	1,516	18.1	41	
800	29	2,041	10.4	46	30	2,060	13.3	56	30	2,023	18.6	28	30	2,028	20.3	27	30	2,065	13.4	45	26	2,024	18.5	61	30	2,031	14.2	44	
750	29	2,579	7.2	44	30	2,607	11.2	45	30	2,580	14.3	31	30	2,587	15.5	31	30	2,611	10.9	38	27	2,582	15.7	58	30	2,577	10.4	45	
700	29	3,139	3.5	43	30	3,174	8.2	42	30	3,149	9.8	36	30	3,160	10.4	37	30	3,178	8.2		27	3,158	11.9	59	30	3,142	6.5	44	
650	29	3,742	-2.2	42	30	3,789	4.8	41	30	3,765	5.1	41	30	3,776	5.2	42	30	3,791	4.7		26	3,780	7.7	64	30	3,749	2.2	41	
600	29	4,373	-4.1	40	30	4,431	-3.9	37	30	4,407	-1.4	35	30	4,420	-2.44	34	30	4,433	-2.7		26	4,432	2.7	69	30	4,387	-2.0	33	
550	29	5,053	-8.2	33	30	5,126	-5.4	34	30	5,096	-5.4	35	30	5,113	-4.4	40	30	5,126	-3.3		25	5,130	-1.8		30	5,072	-6.6	31	
500	29	5,786	-12.8		30	5,872	-7.9		30	5,837	-10.3	36	29	5,856	-9.3	30	30	5,874	-7.9		25	5,884	-5.9		29	5,812	-11.2	30	
450	28	6,587	-18.1		30	6,693	-13.3		30	6,647	-15.9	28	29	6,672	-14.8		29	6,690	-13.5		25	6,708	-10.6		29	6,617	-16.8		
400	28	7,453	-24.6		29	7,572	-19.3		30	7,518	-22.4		29	7,545	-21.1		29	7,570	-20.2		23	7,601	-15.9		29	7,496	-23.6		
350	28	8,410	-31.9		29	8,549	-26.4		30	8,485	-28.5		29	8,516	-28.5		29	8,545	-27.5		23	8,592	-23.0		29	8,448	-30.6		
300	27	9,489	-40.0		28	9,646	-34.4		29	9,566	-36.0		29	9,603	-36.0		29	9,635	-35.4		22	9,706	-30.9		29	9,525	-38.6		
250	27	10,710	-48.3		28	10,895	-43.5		27	10,796	-46.8		29	10,846	-44.2		29	10,881	-44.3		21	10,972	-40.7		29	10,755	-46.8		
200	25	12,137	-54.2		27	12,356	-54.3		26	12,241	-54.1		29	12,315	-52.4		29	12,344	-54.1		20	12,449	-52.8		29	12,309	-54.6		
175	23	12,999	-62.0		22	13,199	-60.2		25	13,093	-55.7		29	13,169	-56.7		29	13,190	-58.8		18	13,295	-59.6		29	13,061	-56.5		
150	22	13,961	-59.8		20	14,139	-65.8		25	14,069	-58.1		29	14,135	-61.4		29	14,146	-63.3		14	14,252	-66.3		28	14,037	-59.4		
125	20	15,078	-61.6		20	15,233	-69.8		23	15,209	-61.5		29	15,252	-66.0		29	15,256	-66.7		9	15,334	-73.1		27	15,173	-61.7		
100	20	16,461	-60.8		18	16,565	-70.1		19	16,589	-61.0		29	16,601	-66.4		28	16,596	-67.3		8	16,626	-77.0		27	16,549	-62.0		
80	17	17,852	-58.9		17	17,902	-66.0		19	17,983	-58.7		28	17,954	-64.6		26	17,956	-64.0		6	17,900	-73.0		24	17,738	-61.1		
60	17	19,667	-56.6		16	19,664	-61.1		16	19,800	-56.7		28	19,728	-60.6		24	19,735	-59.6		6	19,626	-66.2		22	19,735	-58.0		
40	17	20,827	-54.6		16	20,802	-58.3		14	20,957	-55.2		26	20,869	-58.8		22	20,891	-57.2		5	20,718	-65.0		20	20,863	-57.0		
20	14	22,256	-53.2		13	22,220	-55.5		10	22,378	-53.5		22	22,279	-56.2		18	22,307	-54.8						16	22,292	-55.4		
15	8	24,145	-50.6		10	24,075	-53.0						23	24,120	-53.2		12	24,158	-51.0						10	24,125	-52.9		
													16	26,737	-49.8		5	26,820	-48.7										
													5	28,618	-47.7														

MERIDA, MEXICO (1010 MB.)				MIAMI, FLA. (1014 MB.)				NANTUCKET, MASS. (1018 MB.)				NASHVILLE, TENN. (998 MB.)				NORTH PLATTE, NEBR. (919 MB.)				OAKLAND, CALIF. (1013 MB.)				OKLAHOMA CITY, OKLA. (971 MB.)				
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	18	27	26.1	85	30	4	26.9	79	30	14	15.5	90	30	177	19.9	76	30	849	17.7	57	30	6	17.3	73	30	391	23.0	50
1,000	18	115	25.9	84	30	129	26.5	78	30	162	17.3	78	30	159	19.5		30	109			30	113	16.9	72	30	131		
950	18	576	24.3	80	30	585	23.2	81	30	500	16.2	61	30	599	21.2	49	30	564			30	569	21.3	42	30	585	25.4	36
900	18	1,042	21.7	78	30	1,052	20.4	76	30	1,059	13.8	56	30	1,071	17.7	55	30	1,026	21.1	42	30	1,023	20.7	33	30	1,054	22.0	40
850	18	1,536	13.9	78	30	1,544	17.4	72	30	1,539	11.5	54	30	1,557	14.2	56	30	1,520	19.2	37	30	1,514	17.9	31	30	1,547	18.2	45
800	18	2,056	16.0	76	30	2,060	14.5	66	30	2,043	9.4	49	30	2,066	11.8	42	30	2,038	15.7	39	30	2,030	14.9	32	30	2,062	14.3	48
750	18	2,604	13.2	73	30	2,606	11.5	59	30	2,593	6.8	43	30	2,610	9.7	35	30	2,587	11.5	41	30	2,590	11.2	32	30	2,612	11.1	41
700	18	3,181	10.3	67	30	3,177	8.4	51	30	3,140	4.0	39	30	3,174	7.0		30	3,154	7.4	40	29	3,145	7.3	30	30	3,177	8.4	32
650	18	3,798	6.8	63	30	3,789	4.9	47	29	3,742	1.0	31	30	3,782	3.7		30	3,762	3.7	34	29	3,751	3.0	33	30	3,795	4.9	29
600	18	4,449	2.9	64	30	4,435	1.3	48	28	4,379	-2.5		30	4,425	-2.2		30	4,406	-3.3	34	29	4,393	-1.6	33	30	4,434	1.2	
550	18	5,151	-1.4	63	30	5,128	-2.9	46	28	5,064	-6.2		30	5,120	-4.0		30	5,097	-4.9	35	29	5,080	-6.5	33	30	5,132	-3.3	
500	18	5,902	-5.8	61	30	5,879	-7.2	45	27	5,804	-10.9		30	5,862	-8.9		30	5,838	-10.0	33	29	5,819	-11.2		29	5,877	-7.9	
450	17	6,728	-10.3		30	6,702	-12.0	40	27	6,611	-16.5		30	6,680	-14.6		30	6,647	-15.6		29	6,624	-16.4		28	6,698	-13.6	
400	17	7,619	-15.8		30	7,585	-17.8	37	27	7,481	-23.0		30	7,550	-21.2		30	7,521	-22.3		29	7,495	-22.9		28	7,574	-20.5	
350	17	8,611	-23.0		29	8,567	-24.7		27	8,445	-30.1		30	8,520	-28.5													



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	SAN JUAN, P. R. (1013 MB.)				SANTA MARIA, CALIF. (1005 MB.)				S. STE. MARIE, MICH. ( 990 MB.)				SPOKANE, WASH. ( 932 MB.)				SWAN ISLAND, W. I. (1011 MB.)				TACUBAYA, MEXICO ( 773 MB.)				TAMPA, FLA. (1015 MB.)				
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	
1000	30	19	25.6	69	30	71	14.6	65	30	221	12.5	90	30	722	18.2	38	30	10	27.3	83	28	2,306	15.9	77	30	9	24.9	86	
900	30	130	25.3	82	29	116	15.0	83	30	132			30	111			30	106	27.1	81	28	2,306	15.9	77	30	137	24.9	82	
800	30	587	23.4	79	30	564	20.7	51	30	564	13.3	76	30	562			30	566	24.4	79	28	521			30	592	22.4	79	
700	30	1,062	20.6	79	30	1,020	21.8	31	30	1,018	11.2	69	30	1,024	19.4	34	30	1,033	21.5	75	28	998			30	1,058	20.3	77	
600	30	1,545	17.6	79	30	1,514	19.5	27	30	1,494	9.0	64	30	1,512	15.1	39	30	1,527	18.6	72	28	1,492			30	1,551	17.5	76	
500	30	2,062	14.8	75	30	2,032	15.9	30	30	1,994	6.5	62	30	2,021	11.0	43	30	2,045	15.5	68	28	2,018			30	2,068	14.8	71	
400	30	2,613	12.1	68	30	2,581	11.9	33	30	2,520	3.5	58	30	2,559	7.7	41	30	2,596	12.6	66	28	2,570	14.0	75	30	2,613	11.6	68	
300	30	3,183	9.1	61	30	3,149	7.6	33	30	3,078	.4	57	30	3,121	4.2	40	30	3,168	9.3	63	28	3,147	10.1	77	30	3,187	8.5	65	
200	30	3,802	6.0	51	30	3,755	3.3	34	30	3,672	-3.1	52	30	3,724	.5	42	30	3,784	5.7	58	28	3,766	6.0	81	30	3,802	5.0	64	
100	30	4,447	2.5	42	30	4,399	-1.0	33	30	4,299	-6.9	50	30	4,358	-3.6	39	30	4,430	1.9	59	28	4,413	1.8	84	30	4,417	1.5	65	
000	30	5,153	-1.6	36	30	5,091	-5.5		30	4,975	-10.8	42	29	5,039	-8.1	37	30	5,130	-2.0	53	28	5,115	-1.3	81	30	5,148	-2.4	60	
000	30	5,898	-6.2	37	30	5,829	-9.8		30	5,700	-15.7	42	29	5,770	-12.6		29	5,880	-6.3	48	28	5,867	-5.4	76	30	5,896	-6.3	56	
000	30	6,730	-11.3	33	30	6,643	-15.1		30	6,487	-21.4	39	29	6,568	-18.2		29	6,702	-11.2	45	28	6,697	-10.0	69	30	6,726	-11.4	54	
000	30	7,609	-17.6	36	30	7,515	-21.3		29	7,343	-27.7	38	29	7,435	-24.5		28	7,593	-16.7	45	28	7,589	-15.7	61	30	7,607	-17.1	49	
000	30	8,594	-25.0	39	30	8,486	-28.3		28	8,286	-34.6		29	8,392	-31.8		28	8,581	-23.5	42	27	8,582	-22.6	56	30	8,594	-23.9	47	
000	30	9,695	-33.8	38	30	9,573	-36.5		28	9,346	-42.3		29	9,462	-40.0		28	9,689	-31.7		24	9,693	-30.9	44	30	9,700	-32.3	42	
000	30	10,945	-44.2		30	10,812	-45.4		28	10,558	-49.5		29	10,680	-49.5		28	10,950	-42.0		22	10,959	-41.0		28	10,957	-42.3		
000	30	12,402	-56.3		30	12,275	-53.2		27	11,996	-52.9		29	12,117	-55.7		28	12,420	-54.3		20	12,440	-53.4		28	12,426	-54.2		
000	30	13,237	-62.4		30	13,126	-57.5		27	12,854	-54.1		28	12,964	-56.9		27	13,263	-61.0		20	13,286	-60.3		28	13,269	-60.3		
000	30	14,176	-68.0		29	14,069	-62.1		27	13,838	-55.8		28	13,936	-58.4		26	14,203	-68.0		20	14,230	-67.7		28	14,214	-66.9		
000	29	15,256	-72.2		28	15,202	-66.1		26	14,998	-57.7		28	15,076	-60.0		24	15,279	-74.2		15	15,311	-74.3		25	15,300	-71.4		
000	27	16,564	-73.1		28	16,554	-65.7		26	16,404	-58.1		28	16,468	-59.4		19	16,572	-75.2		16	16,598	-75.7		24	16,610	-70.6		
000	24	17,892	-69.4		24	17,919	-63.2		25	17,818	-56.7		25	17,867	-58.3		19	17,877	-70.8		5	17,905	-71.0		19	17,943	-67.1		
000	22	19,623	-64.2		21	19,702	-58.9		24	19,643	-55.6		22	19,679	-56.2		17	19,600	-65.5						12	19,695	-63.0		
000	20	20,750	-60.6		19	20,855	-56.1		20	20,809	-54.8		20	20,835	-55.1		17	20,716	-62.6						10	20,825	-60.7		
000	17	22,152	-56.9		17	22,276	-53.7		18	22,241	-53.1		16	22,271	-52.5		17	22,099	-60.0						8	22,216	-57.5		
000	8	23,992	-53.3		11	24,131	-51.4		15	24,103	-50.5		12	24,150	-50.0		16	23,905	-56.2										
000									7	26,771	-48.0						13	26,503	-50.5										
000																8	28,405	-47.6											

	TATTOOSH ISLAND, WASH. (1013 MB.)				VERA CRUZ, MEXICO (1009 MB.)				WASHINGTON, D. C. (1010 MB.)																			
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity																
1000	30	31	13.2	87	27	12	27.5	80	30	88	17.0	85																
900	30	141	14.7	80	27	93	27.0	80	30	169	20.3	76																
800	30	581	14.9	68	27	551	23.9	79	30	616	19.1	60																
700	30	1,032	13.6	54	27	1,019	21.0	78	30	1,075	16.6	55																
600	30	1,511	11.3	50	27	1,513	18.0	78	30	1,560	13.8	53																
500	30	2,015	8.8	44	27	2,031	15.2	79	30	2,068	11.2	48																
400	30	2,555	6.1	40	27	2,588	12.2	77	30	2,613	8.5	43																
300	30	3,109	3.0	35	26	3,153	9.1	76	30	3,171	5.3	36																
200	30	3,710	.4	34	25	3,774	5.9	76	30	3,779	2.1	33																
100	30	4,341	-4.1	33	25	4,417	2.2	75	30	4,415	-.8																	
000	30	5,025	-8.3		25	5,116	-1.7	75	30	5,106	-4.6																	
000	30	5,755	-13.1		25	5,870	-5.6	72	30	5,848	-9.4																	
000	30	6,552	-18.6		23	6,697	-10.3	69	30	6,661	-15.2																	
000	30	7,417	-24.9		21	7,590	-15.3	65	30	7,533	-21.7																	
000	30	8,372	-32.4		20	8,584	-22.3	57	30	8,502	-28.4																	
000	30	9,440	-40.7		17	9,701	-30.5		30	9,587	-36.6																	
000	30	10,655	-49.5		15	10,971	-40.4		30	10,825	-45.4																	
000	30	12,090	-56.1		14	12,453	-53.3		29	12,278	-54.9																	
000	30	12,937	-67.1		13	13,297	-60.4		29	13,122	-59.2																	
000	30	13,907	-58.6		10	14,236	-68.7		29	14,079	-62.5																	
000	30	15,050	-59.1		10	15,308	-75.7		28	15,192	-65.5																	
000	29	16,449	-58.9		7	16,584	-77.9		27	16,550	-64.1																	
000	29	17,353	-57.1		6	17,884	-71.3		24	17,920	-61.7																	
000	27	19,672	-55.5						23	19,717	-58.6																	
000	23	20,844	-54.1						18	20,863	-56.1																	
000	22	22,276	-52.7						14	22,302	-54.0																	
000	16	24,119	-51.9						10	24,170	-50.8																	
000	5	26,782	-49.2																									

Note: All observations scheduled at 0300, G.C.T. except at Mazatlan, Merida and Veracruz, where they are taken near 0200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and

expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C. have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radio-sondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.



# PILOT BALLOON DATA

Average monthly resultant winds

SEPTEMBER 1952

Table 21

Altitude (meters) m.s.l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N. Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)			Ely, Nev. (1,910 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface-----	30	139	2.0	30	230	1.4	30	309	0.8	29	276	2.5	30	315	2.5	30	53	5.5	29	231	5.1	29	207	1.7	30	85	1.2	30	266	1.5	30	131	2.8	30	211	3.4
500-----	29	142	2.7	29	230	1.4	29	309	0.8	29	276	2.5	29	315	2.5	29	53	5.7	29	244	6.2	29	216	3.3	27	42	1.9	30	258	1.1	29	131	2.8	29	211	3.4
1,000-----	29	128	3.1	29	230	1.4	29	309	0.8	29	276	2.5	29	315	2.5	29	53	4.8	28	255	6.2	29	247	4.5	25	6	1.3	30	243	1.8	29	131	2.8	29	211	3.4
1,500-----	27	130	2.7	30	196	1.8	30	273	3.0	29	277	6.6	30	267	1.2	19	17	3.0	23	281	6.7	22	274	8.4	21	286	2.3	24	262	1.5	30	119	2.1	30	212	2.8
2,000-----	26	123	1.6	29	199	1.6	29	267	4.6	28	278	8.2	30	241	2.2	17	27	3.3	19	285	7.3	18	277	9.9	21	252	2.8	23	293	2.5	29	118	2.4	30	204	2.9
2,500-----	25	73	8.8	29	187	1.3	27	266	6.3	26	280	9.4	29	244	4.0	17	30	3.4	18	294	9.0	15	287	11.1	20	253	3.4	21	298	4.0	28	129	1.3	30	195	3.0
3,000-----	21	348	2.8	28	183	4.4	25	277	9.3	23	283	11.5	29	240	5.8	14	331	1.2	17	301	10.8	10	287	11.5	16	264	3.7	19	309	5.8	27	81	8.2	29	188	3.1
4,000-----	21	357	3.9	25	293	2.2	25	277	11.3	23	290	13.3	28	240	7.7	14	302	10.7	10	292	14.0	14	264	3.7	19	306	6.8	24	323	8.2	25	204	4.6	29	188	3.1
5,000-----	20	345	3.1	24	276	2.4	25	278	13.2	19	281	14.1	24	251	5.5	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
6,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
8,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315	6.4	21	26	8.2	23	215	6.3	29	188	3.1
10,000-----	14	339	3.1	21	246	3.5	14	294	13.5	13	282	13.8	22	253	9.2	14	295	11.0	10	289	14.7	13	253	5.6	17	315										



### Average monthly resultant winds

Table 22

SEPTEMBER 1952

These free-air resultant winds are based on rawin observations made near 0300 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°); speeds in meters per second.

Note: Resultants prepared from rawins at high altitudes are biased toward lower wind speeds. Values appearing in this table should therefore be used with caution when the number of observations missing is greater than three. See note following table 3 in the January 1950 issue of the CLIMATOLOGICAL DATA, National Summary.



# SOLAR RADIATION DATA

Table 30—Solar radiation intensities, tabulated in langley's per minute.

SEPTEMBER 1952

Sun's zenith distance										Vapor pressure, E.S.T.	
Date	A. M.				0.0°	P. M.				7:30 a. m.	1:30 p. m.
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°		
TABLE MOUNTAIN, CALIF.											
Air mass										Mb.	Mb.
	3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76		
September				1.31							
2				1.34							
3				1.39							
4				1.47							
5				1.40							
6	1.14	1.23	1.33	1.48							
7				1.46							
8	1.17	1.26	1.36	1.49							
9				1.43							
10	1.11	1.19	1.29	1.43							
11				1.33							
12				1.36							
13				1.37							
14				1.36							
15				1.36							
16				1.34							
17				1.34							
Averages	1.14	1.23	1.33	1.39							
Departures	+0.01	+0.01	+0.01	-0.03							
LINCOLN, NEBR.											
Air mass										Mb.	Mb.
	4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
September				1.12	1.26	0.99	0.75	0.62	0.48		
2				1.03	1.22	1.06	.90	.64	.48		
3			0.99	1.06	1.25	.99	.79	.67	.56		
4			.64	.88	1.18	.94	.79	.71	.60		
5	0.58	0.69	.79	.94	1.20						
6			.99	1.14	1.32						
7				1.10	1.24						
8	.79	.86	.97	1.14	1.35	1.17	1.01	.88			
9	.73	.84	.97	1.10	1.31	1.06	.84	.64	.52		
10				1.11	.86	.67	.52	.41			
11	.64	.77	.88	1.06	1.21						
Averages	.69	.79	.89	1.06	1.24	1.01	.82	.67	.51		
Departures	-.04	-.05	-.08	-.07	-.14	-.13	-.14	-.15	-.20		
MADISON, WIS.											
Air mass										Mb.	Mb.
	4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		
September				1.16							
2	0.71	0.83	0.96	1.19	1.39						
3	.83	.91	1.03	1.15	1.36						
4	.70	.87	1.01	1.15	1.23						
5	.55	.65	.81	.96	1.15						
6	.44	.55	.68	.86	1.15						
7	.42	.50	.64	.77	1.07						
8	.45	.58	.75	.99							
9		.64		.98							
10			1.02	1.16	1.35						
11		.91	1.03	1.16	1.36	1.15					
12	.75	.84	.96	1.08	1.30						
13	.75	.83	.96	1.15	1.39						
14	.79	.88	.99								
15	.64	.77									
16	.79	.90	1.01	1.15	1.36						
17	.64	.75	.90	1.07	1.39						
18	.80	.92	1.02	1.19	1.45						
19	.61	.73	.87	1.06	1.27						
20	.66	.77	.90	1.06	1.29						
Averages	.66	.77	.91	1.07	1.31	1.15					
Departures	-.05	-.08	-.06	-.06	-.05	+0.01					
* Extrapolated											

Sun's zenith distance										Vapor pressure, E.S.T.	
Date	A. M.				0.0°	P. M.				7:30 a. m.	1:30 p. m.
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°		
ALBUQUERQUE, N. M.											
Air mass										Mb.	Mb.
	4.08	3.26	2.44	1.63	*0.815	1.63	2.44	3.26	4.08		
September				1.51	Cloudy	1.33	1.15	0.99	0.88		
1	1.02	1.11	1.22	1.37	1.51	1.32	1.15	1.00	.89		
2				1.45	1.29	1.15	1.00	.86			
3	.93	1.03	1.16	1.31	1.40	1.20			.73		
4	.87	.99	1.12	1.26	1.45	1.29	1.15	1.00	.86		
5	.75	.88	1.02	1.19	1.40	1.20			.73		
6	.75	.88	1.02	1.19							
7	.87	.97	1.12	1.26	1.45	1.33	1.15	1.01	.89		
8	.91	1.03	1.16	1.31	1.45	1.32	1.15	1.01	.89		
9	.85	.99	1.12	1.29	1.46	1.27	1.09	.95	.82		
RECORDER INOPERATIVE REMAINDER OF MONTH											
Averages	.87	.99	1.12	1.27	1.46	1.29	1.14	.99	.85		
Departures	+0.01	+0.01	+0.02	+0.02	-.02	+0.02	+0.02	-.01	-.06		
BLUE HILL, MASS.											
Air mass										Mb.	Mb.
	4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
September				1.05	1.13			0.79	0.67	0.59	
2				1.11	1.27						
3										.82	
4	0.86	0.96	1.08	1.23							
5	.80	.91	1.05	1.23				1.18	.94	.76	
6								1.34	1.20	1.08	
7	.92	1.03	1.15								.98
8	.86	.98	1.08	1.23						.90	.78
9	.72	.80	.93	1.10							
10	.66	.75	.90	1.09							
11		.74	.87	1.05							
12	.77	.87	1.00	1.14							
13	.56	.66	.78	.98				1.07	1.00	.94	
14	1.01	1.11	1.22	1.35				1.34	1.20	1.11	.98
15	.87	.99	1.11	1.25				1.20	1.10	.96	.80
16	.84	.95	1.10	1.23							
Averages	.81	.90	1.03	1.18				1.27	1.05	.93	.84
Departures	+0.04	+0.03	+0.03	+0.05				+0.14	+0.11	+0.13	+0.16
BOSTON, MASS.											
Air mass										Mb.	Mb.
	4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96		
September				1.22		1.30					
8				1.14							
9				1.01							
10											
Averages				1.12		1.30					
Departures				+0.07		+0.33					
RATIO BOSTON/BLUE HILL ON COMPARABLE DATES											
0.92											
TACUBAYA, D. F., MEXICO											
Air mass										Mb.	Mb.
	3.83	3.07	2.31	1.53	*0.77	1.53	2.31	3.07	3.83		
DISCONTINUED UNTIL FURTHER NOTICE											

\* Extrapolated

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface.  
An explanation of Tables 30 and 31 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given

in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.



# SOLAR RADIATION DATA

SEPTEMBER 1952

Table 31a.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

Date-----	3	4	5	6	7	8	9	Aver-	10	11	12	13	14	15	16	Aver-	17	18	19	20	21	22	23	Aver-	
Langleys-----	220	378	304	404	412	417	410	age	380	363	332	331	51	34	399	age	270	275	208	105	308	310	231	77	age
								363																216	
Date-----	24	25	26	27	28	29	30	Aver-																	
Langleys-----	405	209	422	480	492	366	342	age																	
								388																	

Table 31b.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during the month

Date-----	3	4	5	6	7	8	9	Aver-	10	11	12	13	14	15	16	Aver-	17	18	19	20	21	22	23	Aver-
Langleys-----	92	84	86	86	84	92	85	age	90	88	100	87	77	64	77	age	85	91	79	89	95	98	55	age
								87																84
Date-----	24	25	26	27	28	29	30	Aver-																
Langleys-----	83	84	75	71	71	80	79	age																
								78																

Table 31c.-Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

Date-----	3	4	5	6	7	8	9	Aver-	10	11	12	13	14	15	16	Aver-	17	18	19	20	21	22	23	Aver-
Langleys-----	150	45	69	51	40	68	49	age	77	177	153	111	99	79	45	age	90	147	119	122	144	149	69	age
								65																120
Date-----	24	25	26	27	28	29	30	Aver-																
Langleys-----	75	139	68	24	33	57	106	age																
								72																

Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing east at Blue Hill, Mass., during the month

Date-----	3	4	5	6	7	8	9		10	11	12	13	14	15	16	Aver-	17	18	19	20	21	22	23	Aver-
Langleys-----	---	---	---	337	263	330	Recorder		266	241	216	66	55	236		age	286	116	86	273	217	287	57	age
							trouble									181								189
Date-----	24	25	26	27	28	29	30	Aver-																
Langleys-----	303	120	263	311	288	287	186	age																
								251																

Note.-Langley is the unit used to denote one gram calorie per square centimeter.



## SOLAR RADIATION DATA

Table 33.—Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyrs.

1932	Albuquerque, N.Mex.	Alachicola, Fla.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Is., Pac. Area	Caribou, Me.	Charleston, S.C.	Cleveland, Ohio	Columbia, Mo.	Columbus, Ohio	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	E. Wareham, Mass.	Edmonton, Alberta	El Paso, Tex.	Fly, Nevada	Fairbanks, Alaska	Ft. Worth, Tex.	Fresno, Calif.	Glasgow, Mont.	Grand Junction, Colo.	Grand Lake, Colo.	Great Falls, Mont.	Greeneboro, N.C.	Griffin, Ga.	Hatteras, N.C.	Indianapolis, Ind.	Ithaca, N.Y.	Lake Charles, La.	Lander, Wyo.	Las Vegas, Nev.		
September 3--	210	625	---	175	183	554	360	498	415	635	638	69	541	---	649	521	588	653	249	406	108	654	614	198	875	653	693	---	526	595	606	---	447	474	649	631	688			
September 4--	150	664	619	120	195	456	597	377	581	570	570	480	519	198	688	688	557	614	480	519	523	523	688	---	158	675	653	693	---	526	595	606	---	447	474	649	631	688		
September 5--	137	666	197	120	140	456	597	377	581	570	570	480	519	198	688	688	557	614	480	519	523	523	688	---	158	675	653	693	---	526	595	606	---	447	474	649	631	688		
September 6--	241	642	277	620	129	453	464	594	528	539	657	168	481	---	596	545	583	623	478	519	523	523	688	---	158	675	653	693	---	526	595	606	---	447	474	649	631	688		
September 7--	---	652	407	630	130	453	545	580	571	546	594	558	608	---	342	405	583	623	478	519	523	523	688	---	158	675	653	693	---	526	595	606	---	447	474	649	631	688		
September 8--	343	658	573	164	64	510	545	580	571	546	594	558	608	---	342	405	583	623	478	519	523	523	688	---	158	675	653	693	---	526	595	606	---	447	474	649	631	688		
September 9--	278	648	608	145	99	485	538	324	510	595	---	196	404	---	568	518	414	454	459	521	142	596	659	101	526	652	652	693	---	526	595	606	---	447	474	649	631	688		
Averages-----	(316)	658	435	603	145	249	408	512	459	528	607	(651)	376	506	---	570	517	556	613	387	505	288	559	(590)	(244)	(639)	646	546	---	555	(512)	517	627	564	520	546	562	556	572	
Departures-----	---	448	---	---	228	122	3	1115	445	433	429	---	115	---	1125	471	423	---	---	---	---	---	440	434	227	1116	---	---	---	---	224	464	494	---	466	477	454	470	475	
September 10--	186	627	641	629	105	514	481	508	461	597	633	478	457	---	544	503	433	350	422	463	312	633	430	163	(610)	424	539	---	455	93	633	619	519	358	519	519	562	587	559	
September 11--	278	569	377	247	128	230	501	447	438	434	594	---	152	---	570	523	544	501	372	408	103	630	685	216	633	634	539	---	368	359	424	153	631	510	351	534	547	637		
September 12--	237	534	124	409	193	259	483	390	515	366	587	(846)	440	---	458	479	544	352	372	408	372	633	685	342	(613)	649	288	---	520	419	522	244	625	477	486	377	606	625		
September 13--	128	648	366	259	92	393	107	413	604	431	658	---	141	362	---	458	479	544	352	372	408	372	633	685	342	(613)	649	288	---	520	419	522	244	625	477	486	377	606	625	
September 14--	74	628	495	504	136	93	395	125	576	138	357	(695)	568	557	---	435	185	553	643	219	232	428	524	617	181	563	654	317	---	588	583	492	582	106	491	299	626	624		
September 15--	90	531	480	144	129	179	319	89	564	103	367	(658)	503	469	---	605	464	526	606	448	139	371	577	611	154	537	643	567	---	595	585	---	137	506	557	97	523	608	624	
September 16--	94	546	506	563	107	303	508	473	528	483	114	(655)	485	413	---	499	542	516	574	436	446	524	592	560	241	562	613	512	---	191	530	---	459	531	534	496	602	537		
Averages-----	155	589	427	394	126	231	432	345	533	345	396	(619)	436	401	---	516	456	508	502	386	358	301	606	587	220	(579)	614	443	---	459	415	502	368	488	472	434	461	599	601	
Departures-----	---	417	---	---	438	413	444	221	439	412	409	---	26	---	471	413	416	---	---	---	---	---	424	465	222	484	---	---	---	---	222	47	492	---	430	452	483	418	428	433
September 17--	(137)	611	585	541	172	231	234	328	445	456	---	316	497	---	408	445	524	538	428	442	186	612	576	178	(368)	(622)	432	---	473	396	534	600	554	435	443	585	580	586	546	
September 18--	591	413	391	126	122	358	361	186	532	258	---	160	353	---	505	124	515	569	130	318	293	632	632	320	97	641	(646)	410	---	557	508	425	470	498	134	345	281	576	586	
September 19--	214	591	413	126	122	358	361	186	532	258	---	160	353	---	505	124	515	569	130	318	293	632	632	320	97	641	(646)	410	---	557	508	425	470	498	134	345	281	576	586	
September 20--	171	355	461	333	235	231	346	528	407	315	(697)	274	332	---	53	443	475	352	164	429	406	629	494	287	508	(595)	435	---	368	359	432	232	436	371	174	259	378	586		
September 21--	64	163	169	214	117	167	253	362	528	396	407	---	325	130	---	414	450	486	115	317	386	422	454	393	397	(548)	477	---	326	533	237	181	216	485	170	486	534			
September 22--	29	139	234	361	127	258	475	324	514	338	491	675	395	151	---	539	241	481	558	228	362	413	561	558	237	136	(555)	593	---	556	537	80	410	413	436	471	576	568	574	
September 23--	42	539	487	409	---	75	477	127	532	148	350	674	404	---	343	450	475	556	255	167	412	---	---	---	---	521	(549)	452	552	556	531	223	512	450	476	588	---	571	---	
Averages-----	(109)	430	397	381	152	231	398	276	532	327	472	(673)	336	362	---	436	384	484	484	336	334	364	582	(437)	180	(462)	(578)	433	---	499	481	363	392	347	419	349	451	558	438	
Departures-----	---	97	---	---	469	448	448	71	470	426	---	48	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
September 24--	93	583	236	567	102	274	446	410	546	400	573	(662)	458	---	549	529	388	568	221	417	298	468	565	226	455	(520)	496	558	556	519	541	590	196	501	289	499	555	583		
September 25--	54	576	224	448	177	94	445	229	523	304	597	703	291	---	545	458	466	584	294	399	370	616	558	155	507	(491)	481	551	542	507	460	440	173	493	509	561	539	584		
September 26--	545	545	545	545	175	192	421	465	416	608	703	182	423	---	542	484	436	581	412	421	303	607	443	119	611	(554)	527	547	542	501	565	376	215	483	234	370	541	440	541	
September 27--	109	537	386	335	177	259	395	457	448	434	(607)	445	368	---	466	536	478	453	394	470	281	596	403	934	598	(547)	351	530	530	482	542	367	486	475	497	367	335	544		
September 28--	117	304	522	519	68	201	384	393	483	418	509	(639)	408	328	---	466	490	430	357	368	394	193	315	474	128	558	(527)	449	523	358	358	358	358	358	358	358	358	358		
September 29--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
September 30--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Averages-----	(98)	515	410	497	92	172	427	392	492	396	574	(653)	371	502	---	467	443	558	342	413	292	(540)	543	133	550	(529)	457	533	473	439	495	515	374	462	378	550	499	533		
Departures-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	

Accumulated Departures January 1 to September 30, 1952

Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.



## SEPTEMBER 1952

SEPTEMBER 1952

Note. --Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.

Value in parentheses are interpolated.











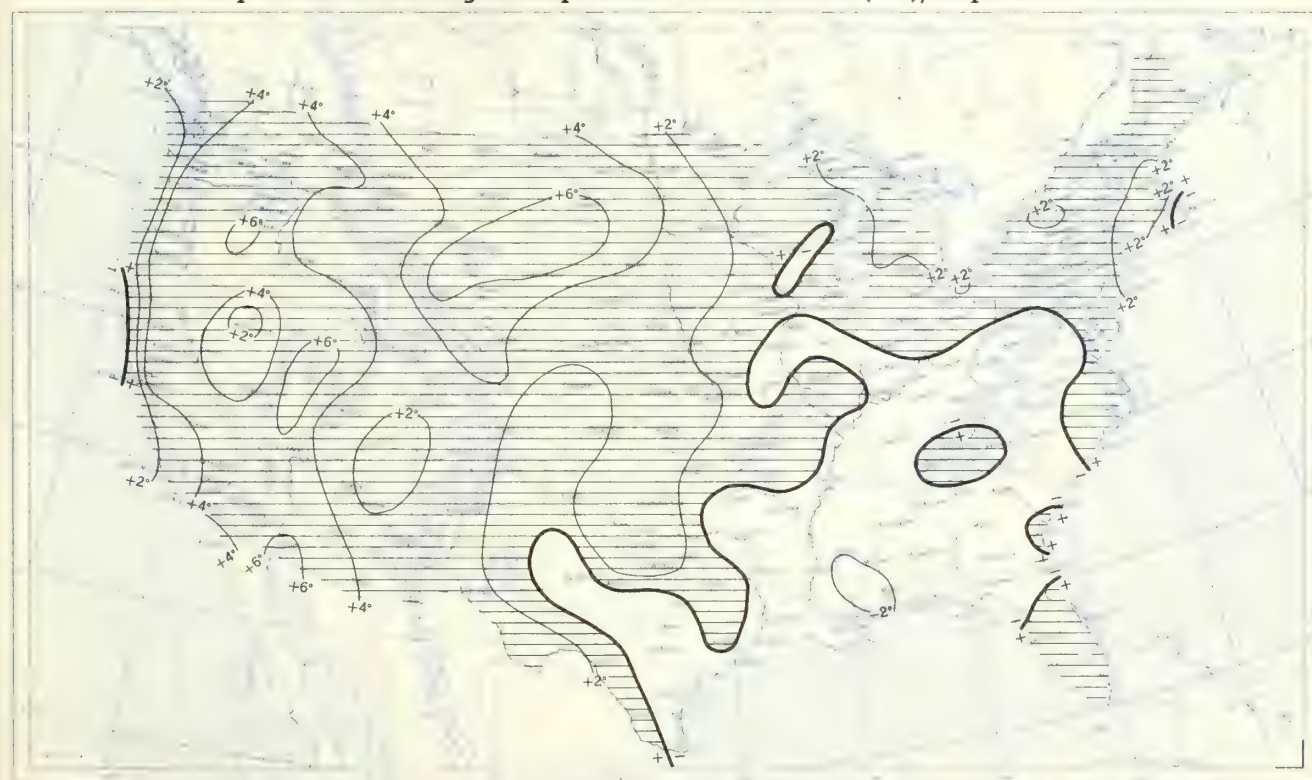




**Chart I. A. Average Temperature ( $^{\circ}\text{F.}$ ) at Surface, September 1952.**



**B. Departure of Average Temperature from Normal ( $^{\circ}\text{F.}$ ), September 1952.**



A. Based on reports from 800 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Normal average monthly temperatures are computed for Weather Bureau stations having at least 10 years of record.



Chart II. Total Precipitation (Inches), September 1952.



Based on daily precipitation records at 800 Weather Bureau and cooperative stations.



Chart III. A. Departure of Precipitation from Normal (Inches), September 1952.



B. Percentage of Normal Precipitation, September 1952.



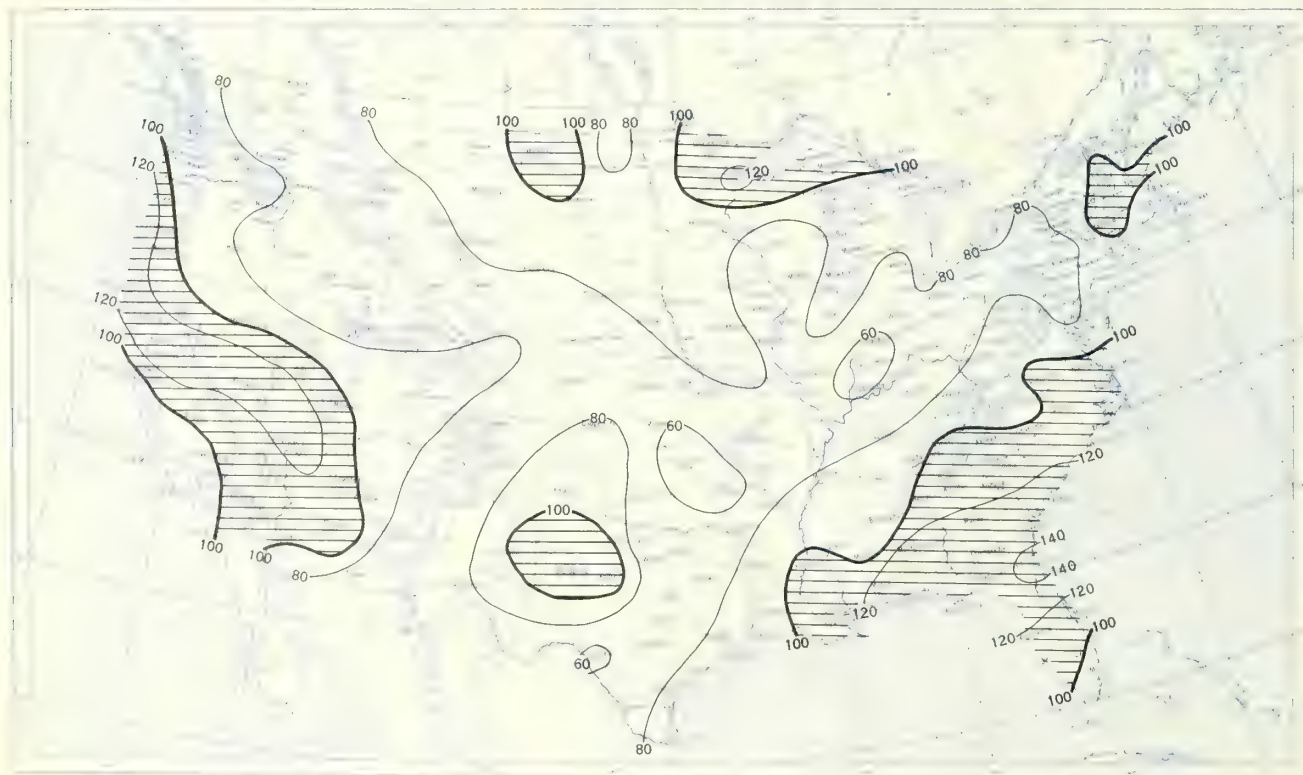
Normal monthly precipitation amounts are computed for stations having at least 10 years of record.



Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, September 1952.



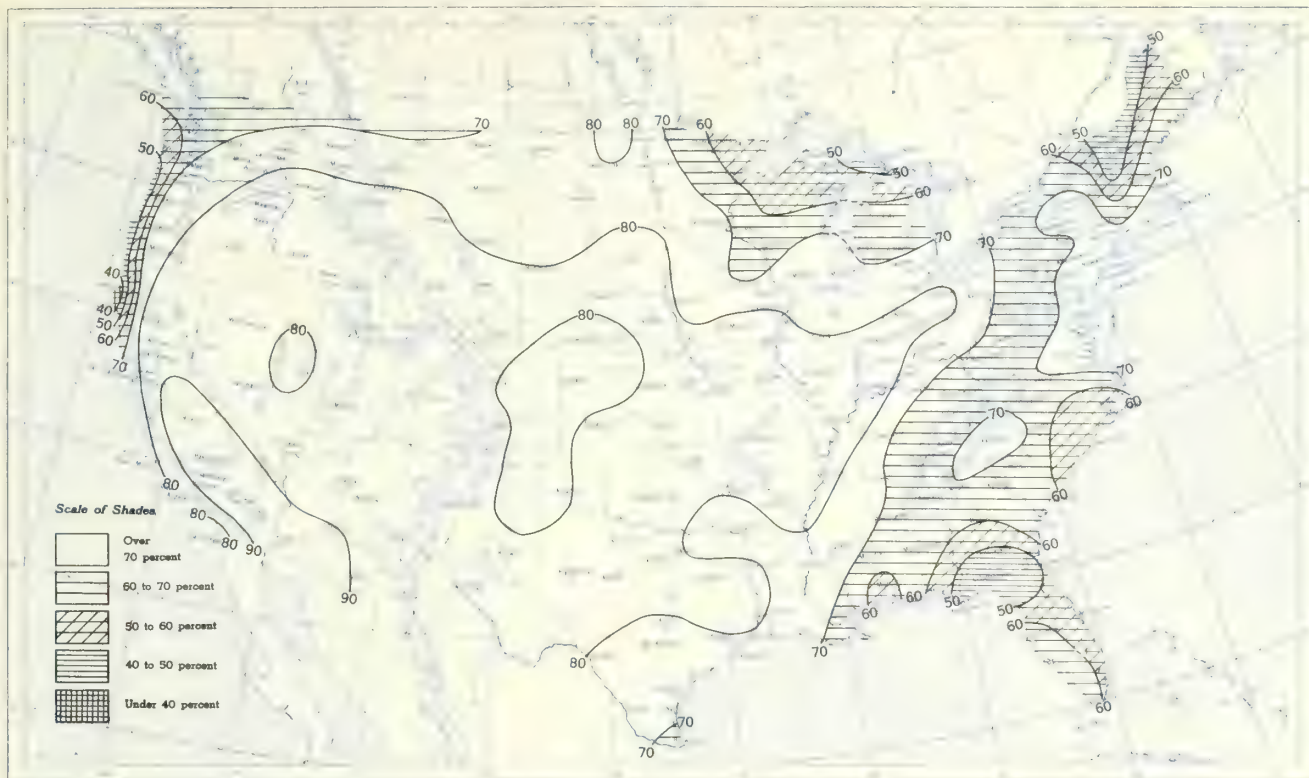
B. Percentage of Normal Sky Cover Between Sunrise and Sunset, September 1952.



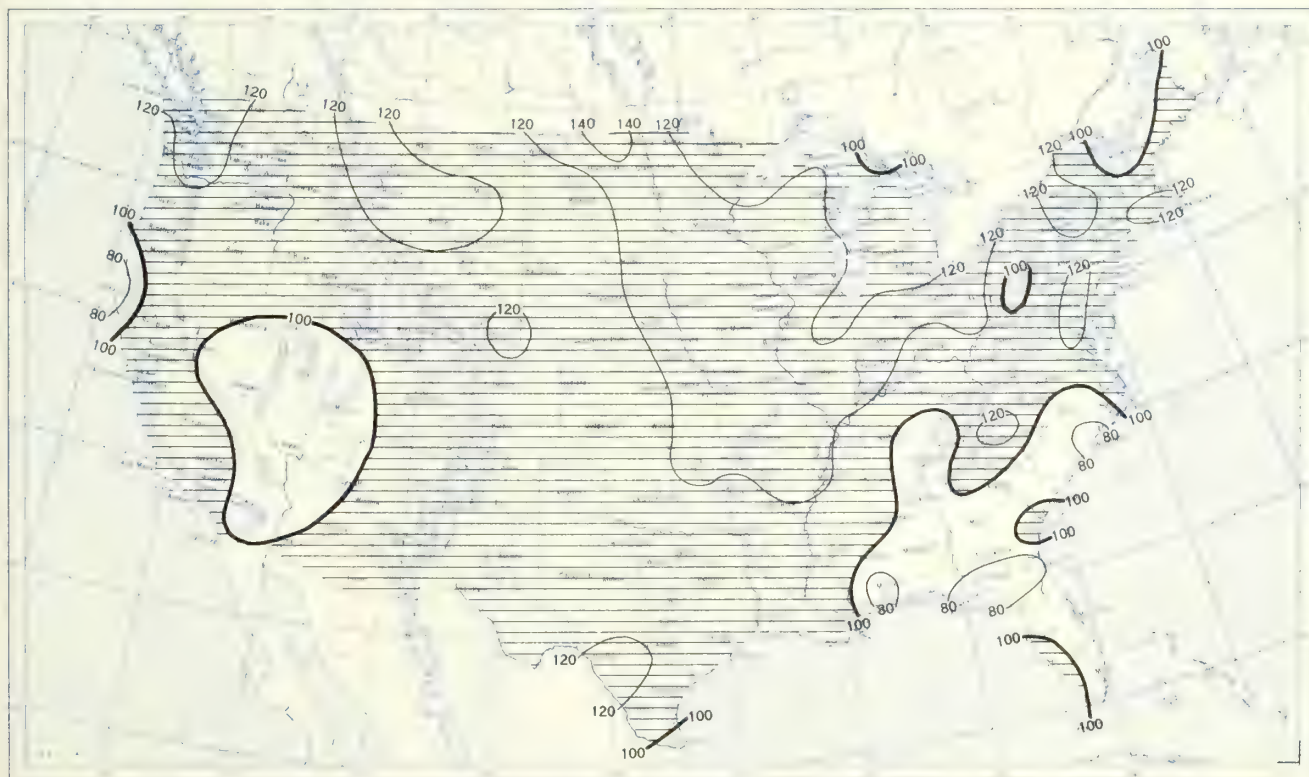
A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.



Chart VII. A. Percentage of Possible Sunshine, September 1952.



B. Percentage of Normal Sunshine, September 1952.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.



Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, September 1952. Inset: Percentage of Normal Average Daily Solar Radiation, September 1952.



Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm.<sup>-2</sup>). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown. Normals are computed for stations having at least 0.5 years of record.



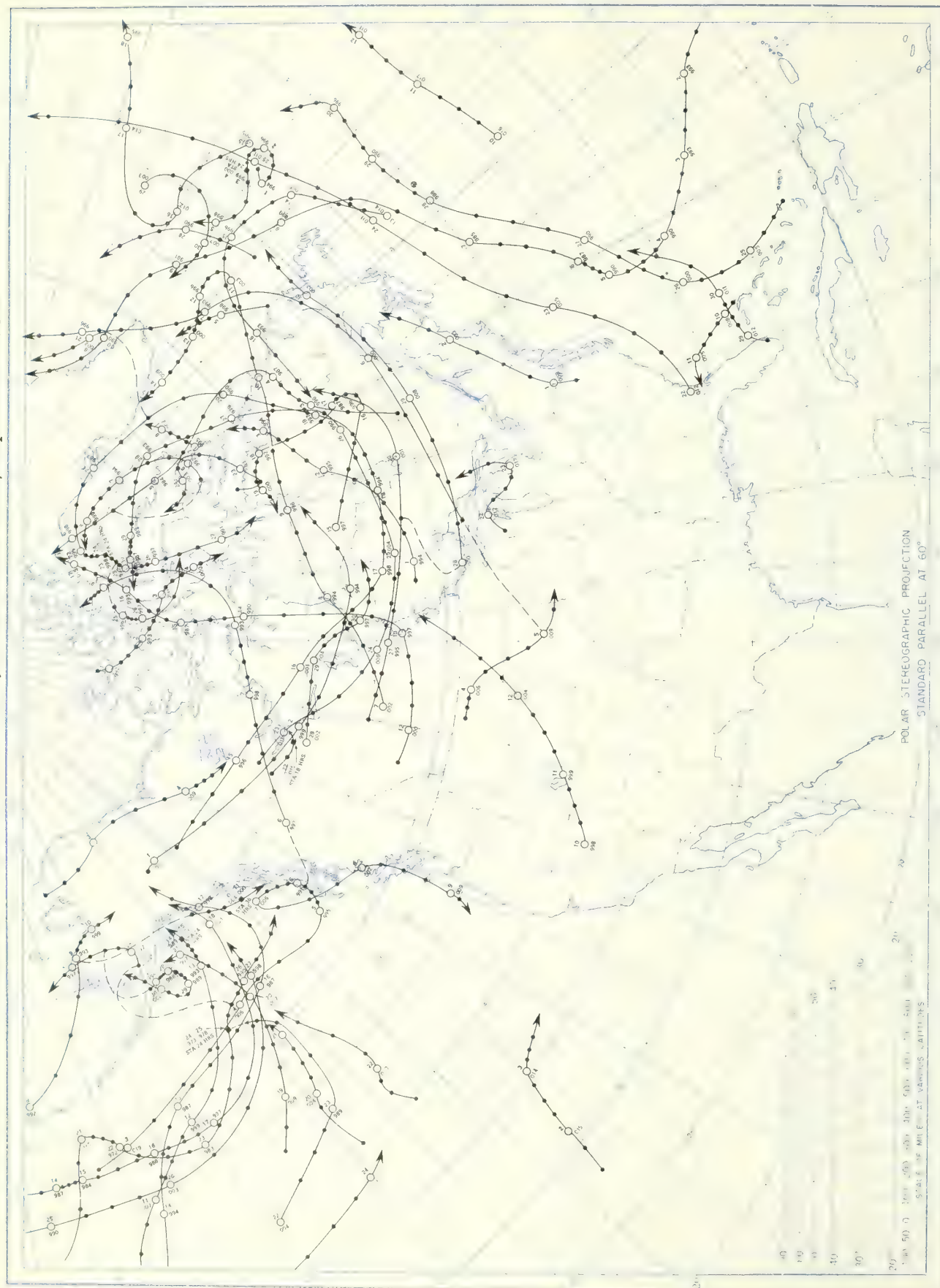
Chart IX. Tracks of Centers of Anticyclones at Sea Level, September 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



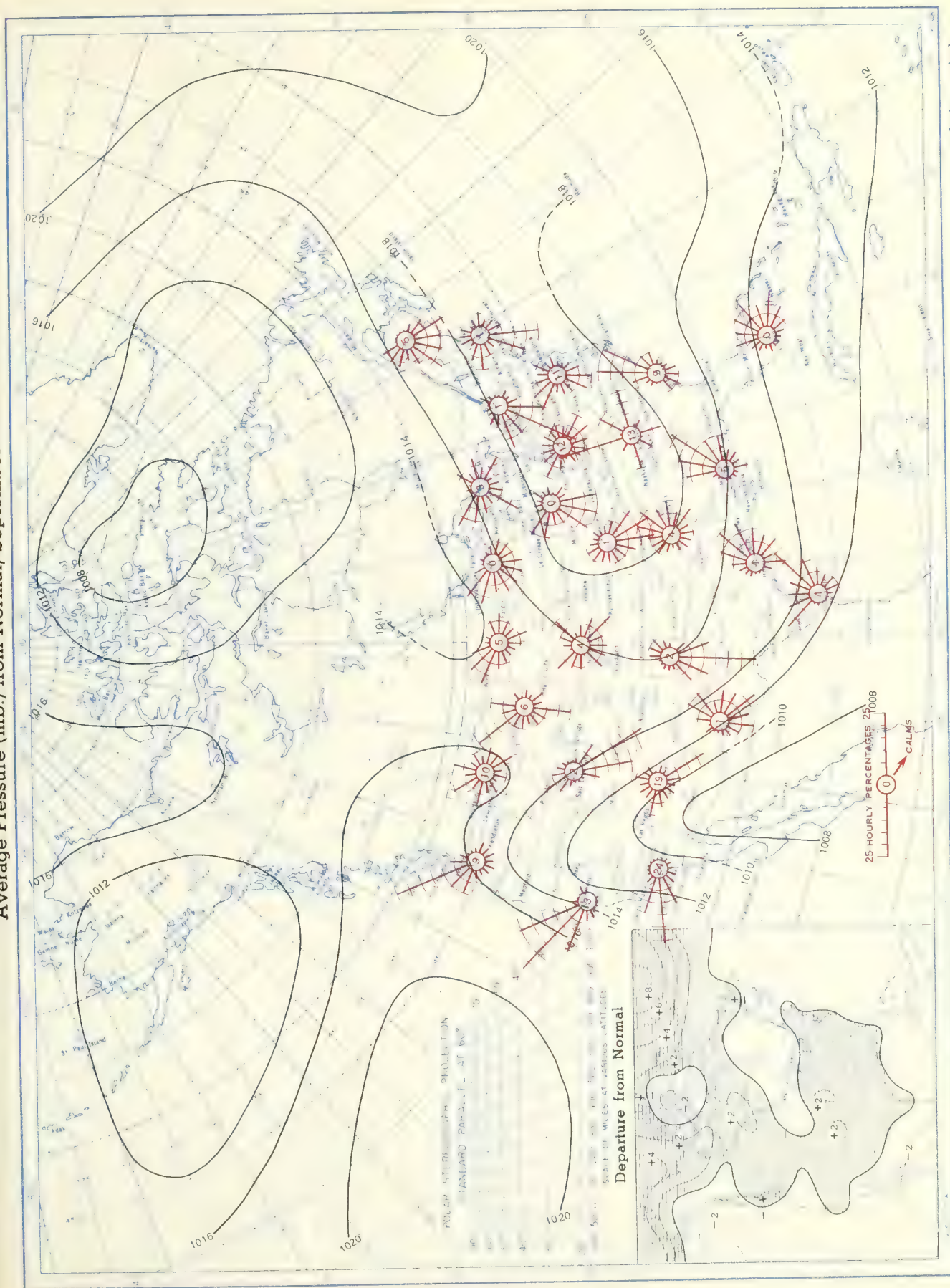
Chart X. Tracks of Centers of Cyclones at Sea Level, September 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. See Chart IX for explanation of symbols.



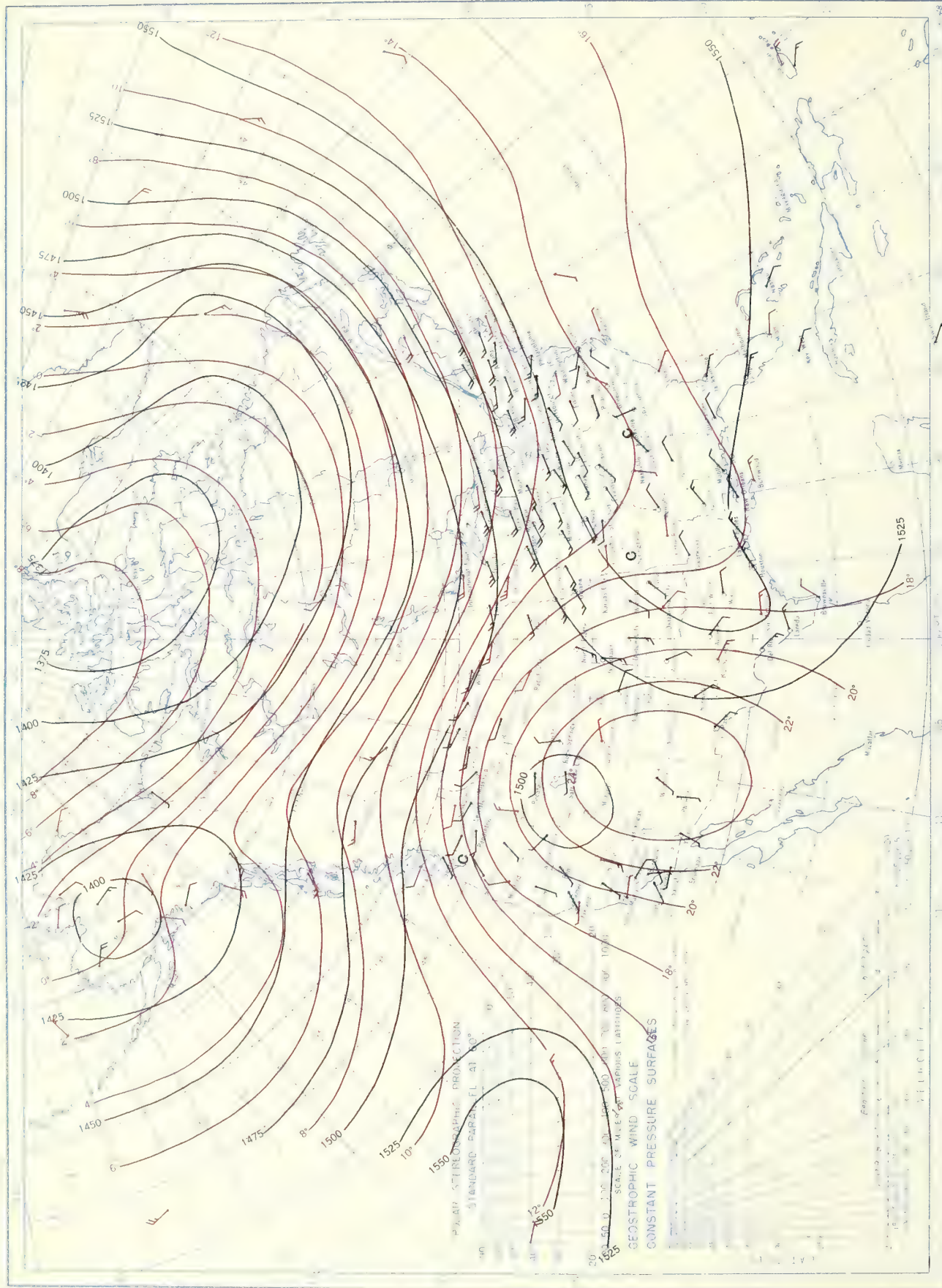
Chart 11. Average Sea Level Pressure (mb.) from Normal, September 1952. Average Pressure (mb.) and Average Temperature (°F.)



Average sea level pressures are obtained from the averages of the 7:30 a. m. and 7:30 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.



Chart XII. Average Dynamic Height in Geopotential Meters (1 g. p. m. = 0.98 dynamic meters) of the 850-mb. Pressure Surface, Average Temperature in °C. at 850 mb., and Resultant Winds at 1500 Meters (m. s. l.), September 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0800 G. M. T.



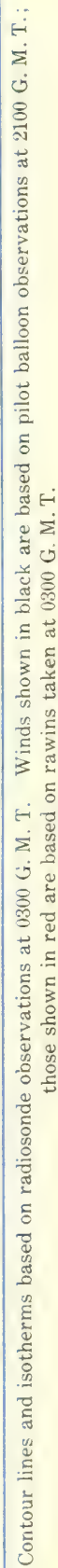
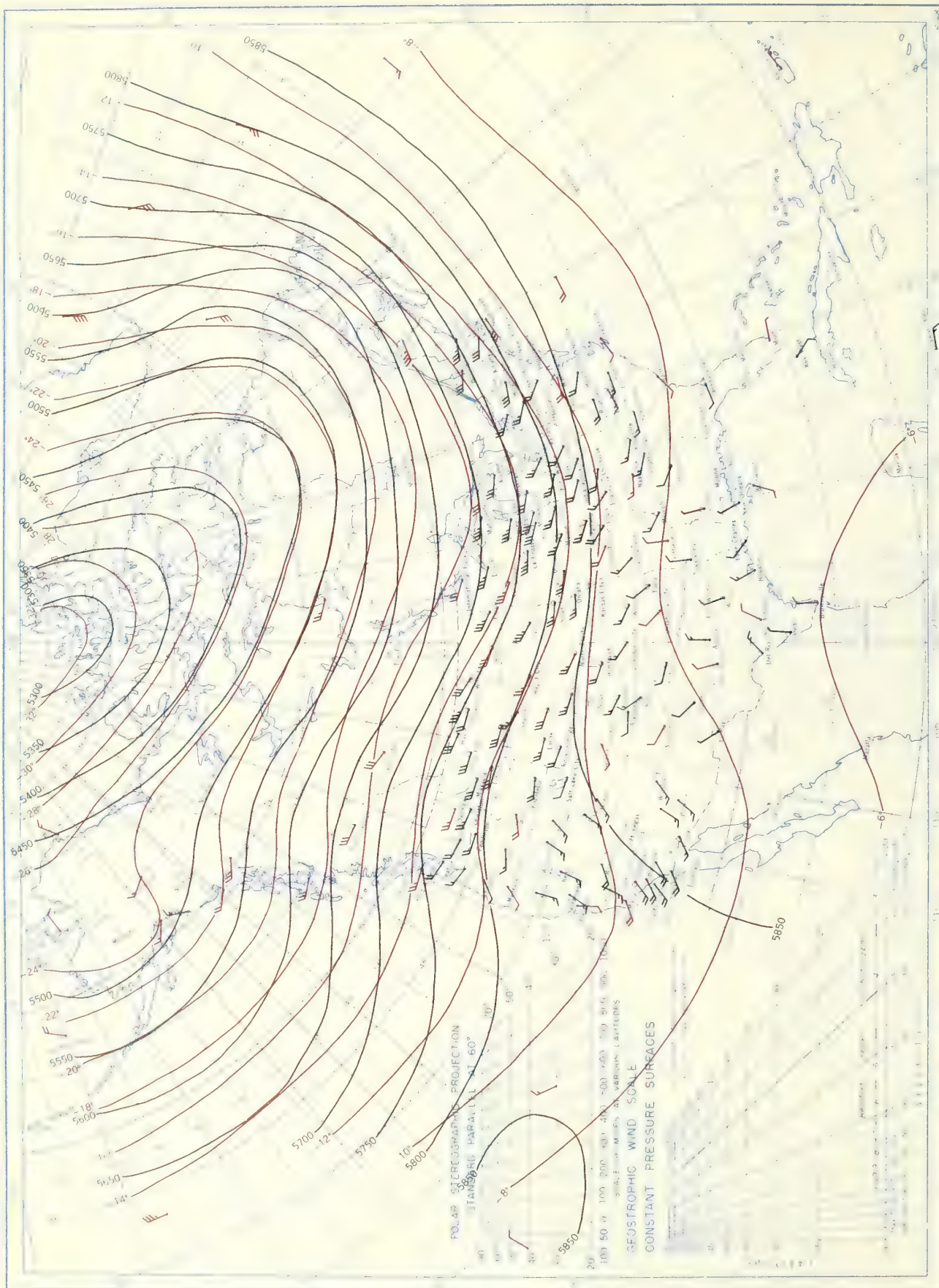


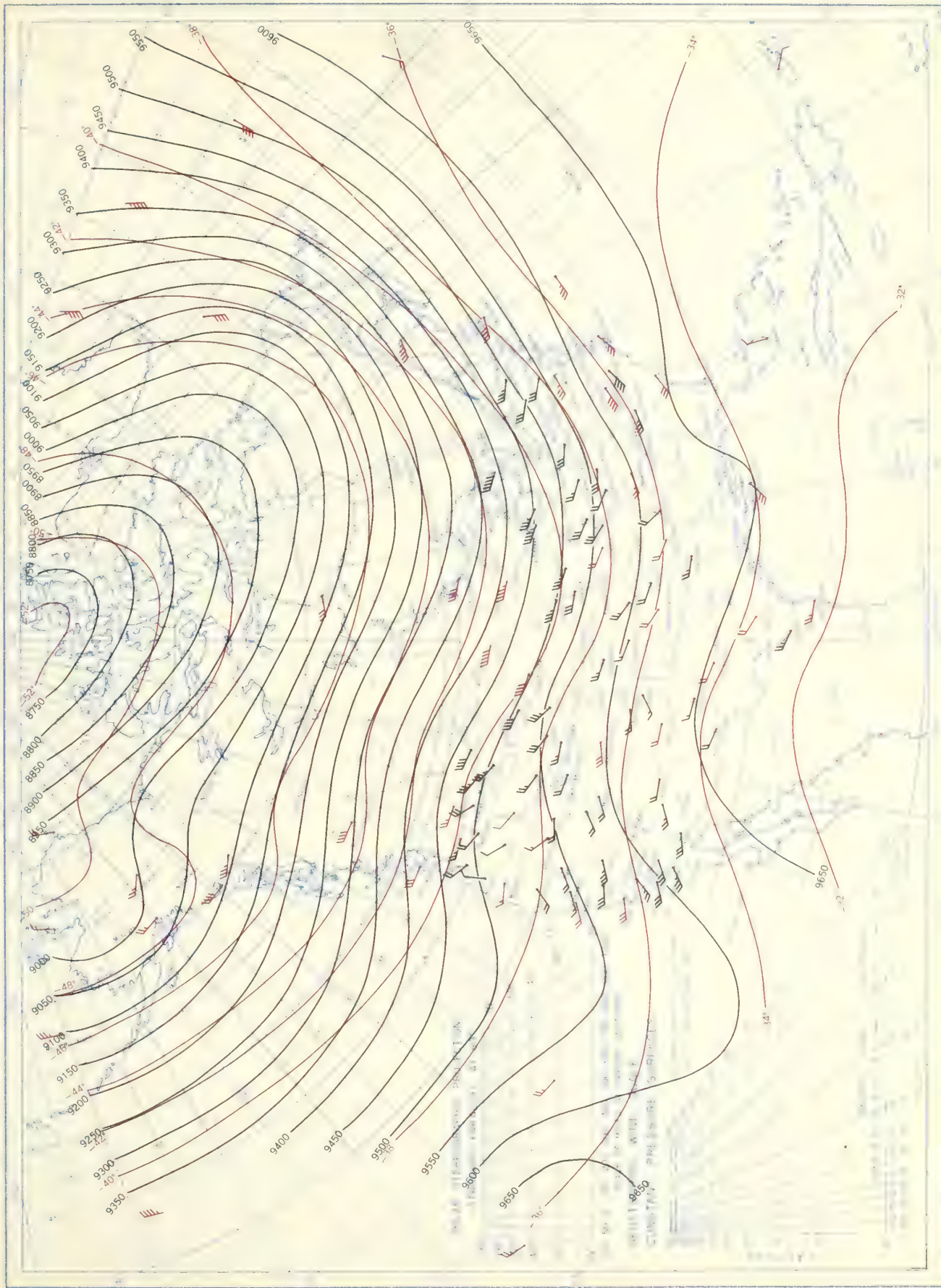


Chart XIV. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 500-mb. Pressure Surface, Average Temperature in °C. at 500 mb., and Resultant Winds at 5000 Meters (m.s.l.), September 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.



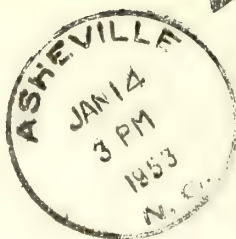


Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T.



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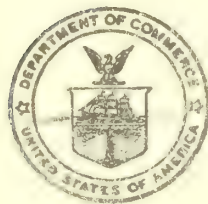
F. W. REICHELDERFER, Chief

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

OCTOBER 1952

Volume 3 No. 10





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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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## CLIMATOLOGICAL DATA

### NATIONAL SUMMARY

Volume 3 No. 10

OCTOBER 1952

### GENERAL SUMMARY OF WEATHER CONDITIONS

October was marked by numerous weather abnormalities, the most pronounced being the dearth of precipitation. This was the driest month on record for the United States, and in many localities rainless periods that had begun in September or earlier, by the end of October were the longest ever known. Sunshine was deficient in a few areas along the Pacific and Atlantic Coasts, especially in the Florida Peninsula where only 33% of the amount possible (a new record for October) was recorded at Miami. In contrast, however, sunshine was abundant over the interior sections of the country, particularly in the central valleys where St. Louis, Mo., recorded 91% of the amount possible which set a new October record for the station and has been previously equaled only in June 1897. With the added effect of unusually low relative humidity, this period of persistent dry sunny weather, which began about the middle of September, permitted the earliest fall harvest on record, but prevented progress of the winter grain crop, much of which lay ungerminated in the dry soil, and created an extremely high Nation-wide fire hazard. East of the Rocky Mountains a record number of fires burned over vast areas of brush and grass as well as large tracts of timberland valued at many millions of dollars.

For the first time since March the monthly temperature average for the United States was below the long-term monthly mean. A succession of record cold waves occurred east of the Rocky Mountains, but in marked contrast, this October was one of the warmest on record west of the Continental Divide. In keeping with these weather conditions, barometric pressure averaged abnormally high, with departures exceeding 5 millibars in some south-central sections. Minneapolis, Minn., recorded a high pressure reading of 30.76 inches, M. S. L., for October on the 20th. There was an almost entire absence of general cyclonic storms. Practically no destructive storms occurred west of the Appalachian Mountains, and no tornadoes were reported.

**PRECIPITATION.**—Precipitation for the United States averaged 0.54 inch, or 0.36 inch lower than for any previous month on record. It was the driest month on record in Utah, Iowa, Kansas, Texas, Louisiana, and Mississippi, the driest October in 9 more States, and the second or third driest in 10 others. In Utah, where precipitation averaged only a trace, this was the first complete month on record with no measurable precipitation at any station. Only 3 stations in New Mexico received measurable amounts, none of which fell after the 4th. Eighty percent of the stations in Nevada, 60 percent in California, and 27 percent of those in Wyoming recorded no measurable rain during the month. At Minneapolis-St. Paul, Minn., where precipitation records began at Fort Snelling in 1837, the total precipitation of 0.01 inch was the least for any October since 1857 when none

occurred, and the total of 0.43 inch for September and October combined was the least of record for this two-month period. A few of the many stations that established new records for the consecutive number of rainless days, were Thrall and Matfield Green, Kans., 71 days; Salt Lake City, Utah, 50 days; Atmore, Fort Morgan, and Robertsdall, Ala., 40; Green Bay, Wis., 39; and Delle, Utah, which had not reported any since July 12.

Monthly precipitation totals generally exceeded an inch along the north Pacific Coast, in the Ohio Valley, most of Kentucky and Tennessee, northern portions of Alabama, and many sections of the Atlantic Coastal States, but were below normal except in the Florida Peninsula and at a few stations in northern New York and eastern Maine. The heaviest and most frequent rain fell in the Florida Peninsula where totals ranged up to 21.08 inches at the Miami Airport. Except in Florida, practically all precipitation east of the Rocky Mountains occurred during the first 10 days. In the Northwest, however, most of the month's rain fell during the last 2 weeks.

Snowfall was generally much below normal in the far West. In Oregon no snow fell at any reporting station. The only noteworthy snowstorm in the north-central interior was a 3-inch fall in the Chicago area on the 20th, which, for Chicago, was the earliest measurable snowfall on record and also the greatest total for any October. On the same date a snowstorm over the Middle Atlantic States was one of the earliest occurrences on record near the Coast. Depths ranged up to 4 inches in northeastern Pennsylvania. New England received its first important snowfall of the season on the 28th and 29th, when depths ranged from traces in the south up to 11 inches at First Connecticut Lake, N. H. In New York State snow fell only in widely separated areas.

The high fire hazard that existed over most of the Nation at the end of September had spread to most of the remaining areas by the middle of October. During the latter half of the month thousands of forest, brush, and grass fires broke out east of the Rocky Mountains, destroying a considerable amount of property as well as valuable timber. In Iowa even some corn fields, a few unpicked, were burned, and in a few instances picking machinery was destroyed. In Oklahoma it was estimated that forest and brush fires burned over 312 square miles. Alabama reported 1,044 fires that burned over 63 square miles, a record for that State. Fires in many sections were still burning at the end of the month. The fires produced a heavy smoke pall not only where the fires occurred, but in other areas to the east as the smoke was carried by westerly winds. In New Orleans on some mornings, the smoke reduced visibility enough to stall traffic. On the 27th visibility in Pennsylvania was reduced to less than a mile by smoke from neighboring States. This smoke layer extended



## GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

OCTOBER 1952

from 2,000 to 6,000 feet above the ground.

**TEMPERATURE.**—The month was abnormally cold from the eastern portions of the Great Plains to the Atlantic Coast, with monthly averages as much as 6° below normal in portions of the South. This was the coldest October on record in Louisiana, Mississippi, and Alabama, and the coldest since 1917 or 1925 in most other States east of the Mississippi River. While the month opened unseasonably warm, with most stations recording their highest temperatures on the 1st or 2d, colder than normal weather began in the north-central interior on the 3d, spread over the entire East by the 6th, and continued, except for brief intervals, during the remainder of the month. On the 6th, early-season low temperature records were established at many stations in the central interior as far south as the northern portions of the Southern States, and freezing temperatures occurred in the Mississippi Valley and Great Plains as far south as the central portions of Oklahoma, Arkansas, and Tennessee. This was the first general killing freeze of the season in many sections of the north-central interior, but major crops, already matured, suffered little or no damage. Early-season low temperature records occurred at many stations in midwestern and south-central areas on the 7th and 8th, and during another unusually cold spell from the 21st through the 23d scattered stations throughout the East experienced record low early-season temperatures. Killing frost or freeze extended as far south as northern portions of Mississippi, Alabama, and Georgia. During this period Georgia, North Carolina, Virginia, West Virginia and Pennsylvania recorded record low October temperatures of 14°, 8°, 9°, 3°, and 7° respectively; and, in addition, record October lows of 13° and 21° in Kentucky and Louisiana, respectively, were equaled. During still

another cold snap on the 29th and 30th freezing temperatures extended to the Gulf and at a number of stations in the Mississippi Valley and in the deep South the lowest temperatures of the month were recorded. New record low temperatures of 16° and 19° for October were established in Mississippi and South Carolina, respectively, and the lows of 19° in Alabama and 21° in Delaware were equaled.

West of the Continental Divide above-normal temperatures prevailed practically throughout the month. State-wide average temperatures were the highest on record for California and Oregon and were exceeded in Utah and Nevada only in 1950. In northern California and western Oregon during the early part of the month record high temperatures for October were established at several stations, including Sacramento, Calif. (102° on the 2d) and Portland, Oreg. (90° on the 6th). The month's highest temperature, 112°, was recorded at Greenland Ranch, Calif., on the 2d.

**DESTRUCTIVE STORMS.**—Total storm damage in the United States was estimated at less than \$300,000, which is a remarkably low total from this cause for any month. Also, only 8 deaths and 2 injuries were reported as being caused by storms. More than half the total damage for the month was caused by winds up to 60 m.p.h. along the east coast of the Florida Peninsula from the 20th to the 22d. Practically all the remaining damage occurred in the northeastern quarter of the country on the 1st or 2d and was the result of wind and lightning accompanying thunderstorms during the passage of a cold front. Wind gusts reached peaks of 65 m.p.h. in Indianapolis, Ind., and 82 m.p.h. in Detroit, Mich., on the 1st, and winds of 73 m.p.h. were registered in New York City and 62 m.p.h. in Philadelphia on the 2d.



# CONDENSED CLIMATOLOGICAL SUMMARY

Table 1

OCTOBER 1952

Section	Temperature								Precipitation							
	Average	Departure from normal	Monthly extremes						Average	Departure from normal	Monthly extremes				Station	Least
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least		
	*F.	*F.		*F.			*F.		In.	In.		In.				In.
Alabama	58.4	-6.5	2 Stations	96	2	2 Stations	19	30	1.39	-1.15	Madison	5.44	5 Stations			0.00
Arizona	66.2	+4.4	Tuma WB AP	109	4	Alpine	17	28	T	-.81	Ruby 4NW	.07	209 Stations			.00
Arkansas	56.6	-6.3	DeQueen	98	1	Lead Hill	14	29	.78	-2.45	Stuttgart	2.03	Portland			T
California	65.6	+4.4	Greenland Ranch	112	2	Boca	15	15	.09	-1.00	Round Mountain	1.11	264 Stations			.00
Colorado	49.4	+1.9	Eversoll Ranch	93	3	Fraser	-5	15	.05	-1.18	Winter Park	.54	89 Stations			.00
Connecticut	49.8	-2.3	New London	80	1	Manesfield Hollow Dam	15	26	1.07	-2.41	Putnam	2.95	Middletown			.51
Delaware	53.3	-4.2	Georgetown	87	2	2 Stations	21	30	.76	-2.31	Willsboro	1.25	Wilmington Port Res.			.32
Florida	71.8	-1.1	2 Stations	95	2	4 Stations	27	30	6.59	+2.34	Miami WB AP	21.08	2 Stations			.00
Georgia	61.7	-3.7	Augusta	96	3	Blairsville Exp. Sta.	14	21	1.29	-1.41	Blackbeard Island	3.54	Fort Gaines			.19
Idaho	51.5	+4.1	Garden Valley RS	92	1	Elk City	9	14	.07	-1.35	Burke 2NNE	.53	68 Stations			.00
Illinois	50.7	-5.2	2 Stations	95	1	Aurora College	11	29	.68	-1.99	Chester	1.82	2 Stations			.00
Indiana	50.1	-5.1	Madison	94	1	Cambridge City	12	21	1.10	-1.67	Leavenworth Dam 44	2.60	Bowling Green			.23
Iowa	47.5	-5.0	Bedford	87	26	2 Stations	7	29	.02	-2.27	Keokuk WBO	.68	39 Stations			.00
Kansas	55.1	-2.6	Sedan	99	1	Atwood	11	7	.02	-2.01	Deerfield	.44	Numerous stations			.00
Kentucky	52.1	-6.3	Clermont 18SE	93	1	2 Stations	13	21	1.45	-1.17	Hindman Sett. School	4.31	Greenup Dam 30			.32
Louisiana	61.2	-6.9	5 Stations	97	1	Chatham	21	29	.04	-3.16	Port Sulphur	.87	78 Stations			.00
Maine	45.2	-2.7	Ripogenus Dam	74	1	Fort Kent 1SE	16	30	3.21	-.35	Fort Fairfield	5.63	Portland WB AP			1.85
Maryland	53.3	-3.0	Waldorf Pol. Brks.	89	2	Oakland	13	21	1.18	-1.79	Berlin	2.97	2 Stations			.51
Massachusetts	50.3	-1.5	7 Stations	78	1	Tully Dam	16	26	1.39	-1.95	Brockton	3.14	Westover Field			.58
Michigan	43.9	-4.9	Wayne	87	1	Luther	7	20	.70	-1.95	Whitefish Point	2.13	Grand Rapids WB AP			.03
Minnesota	42.3	-3.7	2 Stations	80	24	2 Stations	2	17	.15	-1.69	Indus	.83	21 Stations			.00
Mississippi	58.3	-7.2	Eupora	100	1	Houston 1S	16	30	.21	-2.30	Smithville	1.64	42 Stations			.00
Missouri	53.3	-4.4	Nevada	96	1	Black 6NW	7	29	.50	-2.44	East End	2.48	11 Stations			.00
Montana	46.6	+1.1	Fort Benton	88	1	Sonnette 4N	0	6	.16	-.83	Laurel	1.02	35 Stations			.00
Nebraska	50.5	-1.6	Nebraska City 1NW	91	1	Gordon 1E	3	28	.14	-1.33	Loup City	.83	77 Stations			.00
Nevada	57.5	+5.7	Overton	103	2	Deeth	9	15	.01	-.64	Sheldon	.25	56 Stations			.00
New Hampshire	45.3	-2.2	Nashua 3N	77	1	Fabyan	11	26	1.79	-1.32	First Conn. Lake	4.20	McDowell Dam			.60
New Jersey	52.1	-2.8	2 Stations	97	1	Layton 3NW	10	26	.86	-2.60	Bass River St. Park	1.72	Midland Park			.29
New Mexico	56.2	+1.4	Jal	87	4	Capulin 6SSE	10	15	T	-1.13	Chacon	.37	233 Stations			.00
New York	46.0	-4.2	Danville	94	1	2 Stations	10	21	2.09	-1.14	Stillwater Resvr.	5.19	Patchogue			.17
North Carolina	56.6	-3.6	Caroleen	92	1	Banner Elk	8	21	1.28	-1.97	Wilmington WB AP	3.15	Leicester			.10
North Dakota	43.2	-.8	Mandan-Port Lincoln	80	21	Edmore 1W	2	28	.10	-.94	Pembina 2N	.55	7 Stations			.00
Ohio	49.2	-4.6	Gallipolis 5W	93	1	Hillsboro 1E	11	21	.99	-1.49	Athens 5NW	2.51	Marysville			.03
Oklahoma	59.5	-3.6	Hollis	100	13	Tablequah	17	29	.11	-2.85	Spiro	1.66	Numerous stations			.00
Oregon	54.7	+4.4	2 Stations	98	1	Seneca	3	14	.33	-1.89	Astoria	2.34	28 Stations			.00
Pennsylvania	48.3	-4.4	3 Stations	88	1	Coudersport 1NNE	7	21	1.33	-1.84	Kregar 4SE	3.14	Chadds Ford			.21
Rhode Island	51.7	-1.7	Providence WB City	81	14	Kingston	20	28	1.64	-1.74	Providence WB City	2.80	Block Island WB AP			.81
South Carolina	59.7	-4.5	Saluda	94	1	Union 7SW	19	30	1.02	-1.84	Yemassee 4W	2.50	Pickens 4SE			.16
South Dakota	46.9	-2.0	Ardmore	86	9	Deerfield Dam	-1	14	.03	-1.18	Redfern	1.18	45 Stations			.00
Tennessee	53.4	-6.4	3 Stations	92	1	2 Stations	15	21	1.30	-1.50	Bethel	3.60	Hampton			.00
Texas	63.5	-3.3	Encinal	101	4	do	23	15	.03	-2.42	Brownsville WB AP	1.78	Numerous stations			.00
Utah	54.5	+5.1	3 Stations	95	1	Woodruff	7	15	T	-1.21	3 Stations	1.48	148 Stations			.00
Vermont	44.3	-2.8	Woodstock 2WSW	79	1	2 Stations	13	26	2.60	-.61	McIndoe Falls	4.51	Readsboro 18SE			.84
Virginia	54.0	-3.4	Suffolk-Lake Kilby	91	1	Burkes Garden	9	21	1.47	-1.45	Onley 1S	3.58	Darwin			.19
Washington	54.1	+4.0	Kosmos	95	6	Chevelah 2S	15	26	.68	-2.10	Spruce	3.70	2 Stations			.00
West Virginia	49.7	-5.1	Spruce Knob	92	2	Canaan Valley	5	21	1.07	-1.69	Hopemont	2.04	do			.52
Wisconsin	42.7	-5.1	Racine	83	1	2 Stations	4	17	.17	-2.21	Gurney	1.28	7 Stations			.00
Wyoming	47.1	+2.7	Torrington Exp. Farm	88	9	Ross	-2	6	.15	-1.00	Fort Washakie 2S	.90	33 Stations			.00
*Alaska	50.5	-.3	2 Stations	82	17	Puntilla	22	27	2.69	-.45	Chichagof	13.47	Wainwright			.48
**Hawaii	73.6	-1.2	Puunene CAA AP	93	11	Haleakala RS 338	37	19	3.10	-1.86	Wahiawa WCI 882	11.30	12 Stations			.00
Puerto Rico	78.5	+.6	Caguas	96	3	Guineo Dam	55	1	6.72	-.93	Rio Blanco 1,800'	16.41	Mons Island			.80

\* Other dates also.

\* August 1952.

\*\* September 1952.



## CLIMATOLOGICAL DATA

Table 2

OCTOBER 1952

State and station	Elevation (ground)	Pressure		Temperature										Precipitation					Wind					No. of days											
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max 90° F or above	Min. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days 0.1 inch or more	No. of days With thunderstorms	Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine			
																					Total	Max. depth on ground											to sunrise	to sunset	
ft	mb	mb	°F	°F	°F	°F	°F	°F	°F	°F	°F	%	°F	%	in	in	in	in	in	in	in	in	in	in	in	in	in	in	in	in	in	in	in	in	
ALABAMA																																			
Anniston	599	-----	1019.1	72	40	55.7	---	88	1	22	30	0	7	44	---	1.92	-0.70	1.71	3	1	0.0	0	---	*24	NE	20	22	5	4	2.4	---	---			
Birmingham	610	995.6	1021.1	71	43	56.8	-5.6	88	1	27	29	0	2	40	63	2.03	-3.39	1.98	2	1	0	6.5	N	29	NE	20	22	4	5	2.5	78	---			
Mobile CO	10	-----	-----	75	51	62.7	-6.6	89	1	35	30	0	0	---	---	1.15	-3.45	1.15	1	1	0	9.9	N	33	N	28	22	7	2	2.3	84	---			
Mobile	211	1011.5	1019.8	77	49	63.0	---	91	2	34	30	1	0	45	62	0.06	---	0.06	1	1	0	10.1	N	---	---	24	6	1	1.6	---	---				
Montgomery CO	201	-----	-----	73	50	61.9	-4.7	92	2	33	30	2	0	---	---	0.82	-1.64	0.72	4	1	0	---	---	---	---	24	6	1	1.6	---	---				
Montgomery	198	1012.5	1020.1	74	47	60.4	-6.2	92	2	26	30	1	1	46	67	1.00	-1.46	0.97	3	1	0	4.8	N	26	NE	21	22	2	7	2.8	77	---			
ARIZONA																																			
Flagstaff	6993	792.1	1022.3	72	31	51.1	---	75	2	24	27	0	21	---	---	T	---	T	0	0	0	0	---	---	---	---	21	6	4	2.8	---	---			
Phoenix CO	1083	-----	-----	96	61	78.6	+8.0	102	4	52	27	29	0	---	---	0.00	-0.47	0.00	0	0	0	5.5	---	18	SE	2	---	---	---	---	---	97	---		
Phoenix	1108	974.6	1013.0	95	58	76.8	---	101	4	50	27	29	0	41	31	0.00	-0.47	0.00	0	0	0	3.9	SE	*18	SE	2	24	2	5	2.2	---	---			
Prescott	5014	850.7	1017.3	81	43	61.9	---	85	4	36	24	0	0	25	27	0.00	---	0.00	0	0	0	7.4	SW	*21	SW	9	23	5	3	2.4	93	---			
Tucson	2558	926.2	1013.1	91	60	76.4	+7.7	97	3	51	30	28	0	35	24	0.00	-0.54	0.00	0	0	0	5.8	SE	*31	SE	8	21	5	5	2.5	97	---			
Winslow	4830	855.4	1016.8	80	41	60.8	-4.0	87	4	33	27	0	0	21	25	0.00	-0.64	0.00	0	0	0	5.2	SE	*20	WNW	19	21	8	2	2.2	---	---			
Yuma	203	1006.1	1011.2	100	66	82.9	---	109	4	60	23	31	0	44	29	0.00	---	0.00	0	0	0	5.1	NNE	16	S	30	24	3	4	2.1	96	---			
ARKANSAS																																			
Fort Smith	458	1004.7	1021.8	75	39	56.7	-6.1	92	1	22	29	2	7	35	58	1.38	-1.61	1.32	3	3	0	6.3	NE	30	NE	5	28	2	1	1.1	91	---			
Little Rock	257	1008.5	1021.8	72	42	57.0	-6.6	91	1	31	23	1	4	37	56	0.58	-2.13	0.40	4	1	0	7.8	SW	*34	N	28	22	5	4	2.2	89	---			
Texarkana	361	1007.8	1021.4	76	44	60.1	-6.7	93	1	30	29	3	1	38	55	0.33	-3.12	0.31	2	2	0	7.5	NE	*36	NE	6	25	3	3	1.7	55	---			
CALIFORNIA																																			
Bakersfield	489	998.0	1015.9	85	56	70.3	+5.0	100	2	49	*28	7	0	51	52	T	---	T	0	0	0	0	3.1	ENE	*16	NNW	7	21	5	5	2.6	---	---		
Beaumont CO	2589	876.4	1016.6	86	51	68.6	---	96	1	40	23	9	0	---	---	0.00	---	0.00	0	0	0	---	---	---	---	---	19	8	4	3.2	---	---			
Bishop	4198	876.4	1016.6	83	38	60.9	---	93	1	32	26	5	3	---	---	0.00	---	0.00	0	0	0	---	---	---	---	---	23	3	5	2.3	---	---			
Blue Canyon	5280	842.5	1016.3	70	51	60.5	---	82	1	42	*19	0	0	---	---	0.01	---	0.01	1	0	T	---	---	---	---	---	21	4	6	2.9	---	---			
Burbank	699	989.2	1015.4	80	53	66.7	---	93	3	43	24	2	0	52	67	0.01	---	0.01	1	0	0	3.2	SE	*17	SE	1	11	12	8	5.0	---	---			
Eureka CO	43	1016.6	1019.0	59	50	54.3	+7.7	75	1	47	*14	0	0	---	---	0.62	-1.71	0.36	3	1	0	4.0	---	18	N	9	5	2	2.4	7.9	29	---			
Fresno	331	1003.4	1015.1	84	52	68.2	+5.9	98	2	44	27	7	0	51	60	0.02	-0.55	0.02	1	0	0	4.6	NW	15	NW	18	23	5	3	2.2	95	---			
Los Angeles CO	312	1011.5	1015.3	77	58	67.0	+1.7	87	4	54	27	0	0	---	---	0.00	---	0.00	0	0	0	4.4	---	---	---	---	17	4	11	6	4.4	75	---		
Los Angeles	98	1011.5	1015.3	69	57	63.3	---	76	4	52	*27	0	0	57	82	T	---	T	0	0	0	4.6	WSW	*22	W	16	7	13	11	6.2	---	---			
Mt. Shasta CO	3543	895.4	1018.8	75	41	57.9	+6.7	92	1	34	*22	2	0	---	---	0.69	-1.58	0.66	2	1	0	0	---	---	---	---	20	4	7	3.3	---	---			
Oakland	3	1016.9	1017.4	69	53	60.8	+2.1	84	1	47	*27	2	0	53	82	0.01	-0.92	0.01	1	0	0	3.7	WNW	*16	WNW	25	8	12	11	5.9	---	---			
Red Bluff	341	1003.1	1015.8	85	54	69.7	+5.4	104	5	46	27	8	0	44	45	0.10	-1.23	0.10	1	1	0	5.7	NW	21	S	18	18	7	6	3.3	84	7			
Sacramento	17	1014.9	1015.8	81	50	65.6	+2.7	98	2	42	*27	5	0	50	63	T	---	T	0	0	0	6.7	SW	23	SW	18	22	5	4	2.4	83	7			
Sandberg	4517	865.2	1015.2	77	57	66.9	---	87	2	45	19	0	0	29	28	0.00	---	0.00	0	0	0	11.9	S	---	---	---	21	5	5	3.0	---	---			
San Diego	19	1012.2	1015.3	71	59	65.2	+1.1	78	3	55	19	0	0	58	80	T	---	T	0	0	0	5.3	N	17	SW	17	10	12	9	5.4	56	4			
San Francisco CO	52	-----	-----	65	53	58.8	-1.7	89	1	50	*27	0	0	---	---	0.07	-1.05	0.06	2	0	0	7.3	---	---	---	---	3	14	14	6.6	43	4			
San Francisco	1	1016.6	1017.3	67	51	58.9	+1.2	87	1	45	27	0	0	53	86	0.00	-0.68	0.06	2	0	0	9.2	NNW	*30	W	29	10	12	5	5.8	---	---			
Santa Catalina	1568	959.0	1014.6	74	56	65.2	---	89	3	47	24	0	0	---	---	0.00	---	0.00	0	0	0	---	---	---	---	---	16	12	3	3.5	---	---			
Santa Maria	231	1008.8	1017.2	67	50	58.5	---	76	1	43	*20	0	0	52	87	0.04	---	0.04	1	0	0	4.5	W	*21	W	19	6	17	8	5.9	---	---			
COLORADO																																			
Alamosa	7534	776.5	1023.7	68	22	44.6	---	73	1	11	15	0	30	---	---	0.02	---	0.02	1	0	0	0	---	---	---	---	---	23	8	0	1.8	---	---		
Colorado Springs	6175	816.1	1022.0	66	36	51.4	---	79	3	20	15	0	8	18	31	0.04	---	0.04	1	0	T	0	9.9	N	*34	NNW	14	23	4	4	2.6	---	---		
Denver	5292	842.5	1020.2	69	37	53.3	+3.8	79	3	24	15	0	9	20	33	0.18	-0.92	0.17	2	0	1,2	1	6.5	S	29	N	14	20	7	4	3.2	82	2		
Grand Junction	4849	863.5	1019.3	73	41	57.4	+4.6	83	1	30	15	0	1	21	26	0.00	-0.95	0.00	0	0	0	7.1	ENE	29	NE	6	24	5	2	2.1	96	6			
Pueblo	4799	861.5	1021.2	72	35	53.4	+2.2	85	3	21	15	0	13	22	35	T	---	T	0	0	0	4.5	NW	27	NW	3	23	7	1	2.1	94	4			
CONNECTICUT																																			
Bridgeport	7	1016.6	1017.4	63	43	52.9	-1.7	78	6	28	26	0	3	41	64	0.68	-2.15	0.64	3	1	T	11.0	WSW	*32	NW	2	15	9	7	4.1	---	---			
Hartford	15	1011.2	1016.9	62	38	50.8	-4.4	79	14	23	26	0	8	38	67	0.65	-2.87	0.63	3	1	T	8.4	SSW	*34	NW	29	13	7	11	4.8	71	4			
New Haven	6	1012.9	1016.6	63	42	51.7	-4.1	75	6	25	26	0	4	---	---	0.74	-2.61	0.49	4	1	T	7.7	---	---	---	---	21	4	7	10	4.4	72			



## CLIMATOLOGICAL DATA

Table 2—Continued

OCTOBER 1952

State and station	Elevation (ground)	Pressure			Temperature											Precipitation					Wind			No. of days							
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max 90° F. or above	Min 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	Of inch or more	No. of days With thunderstorms	Snow, Sleet, Hail	Average hourly speed	Prevailing direction	Fastest mile							
																								Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
Fl.	Mb.	Mb.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	%	In.	In.	In.	In.	In.	In.	In.	M p. h.	M p. h.									
INDIANA																															
Evansville	385	1005.8	1022.0	67	37	52.0	-5.0	90	1	21 22	1	10	34.64	1.07	-1.75	1.04	2	1	T	0	9.3	SSW	12	NE	20	24	4	3	2.1	85	
Fort Wayne	801	988.2	1019.8	59	35	47.1	-5.6	83	1	20 21	0	15	34.64	.80	-1.80	.71	5	2	0.7	T	8.1	SW	31	N	19	14	11	6	4.0	80	
Indianapolis	796	991.2	1021.0	63	36	49.8	-4.3	87	1	22 29	0	10	34.61	.64	-2.14	.29	4	3	0	0	11.0	SW	36	N	1	20	7	4	3.1	81	
South Bend	798	991.5	1020.0	59	35	47.1	-6.1	83	1	23 20	0	12	32.72	1.31	-1.76	1.09	5	0	2.0	1	11.2	SW	*28	SSW	30	14	9	8	4.1	--	
Terre Haute	585	1000.0	1021.5	65	35	50.1	-6.1	90	1	19 21	1	13	32.64	.25	-2.43	.09	3	2	T	0	6.6	S	36	NE	19	22	5	4	2.4	85	
IOWA																															
Burlington	605	995.3	1021.3	63	34	48.7	-5.1	83	1	18 29	0	13	28.56	.46	-2.23	.41	2	2	0	0	10.0	NW	35	NW	27	20	6	5	3.0	85	
Charles City CO	1013	983.7	-----	58	31	44.7	-3.9	77	24	17 29	0	20	-----	-----	-2.33	.01	0	0	0	0	5.7	-----	21	SW	15	22	4	5	3.0	77	
Davenport CO	579	998.6	-----	62	38	49.7	-4.0	82	1	24 29	0	7	-----	.01	-2.38	.01	1	1	0	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Des Moines	800	989.8	1021.8	63	35	48.7	-4.7	79	24	21 29	0	12	28.53	.03	-2.47	.03	1	1	0	0	11.2	NW	36	N	5	20	7	4	3.1	82	
Dubuque	641	980.4	1020.2	59	30	44.5	-----	74	26	13 29	0	16	25.56	T	-2.47	T	0	0	0	0	-----	-----	*10	WSW	15	16	8	7	4.1	--	
Sioux City	1097	979.3	1021.6	64	32	47.7	-2.0	82	24	18 29	0	14	27.53	T	-1.77	T	0	0	0	0	7.4	NW	24	N	27	17	10	4	3.5	84	
KANSAS																															
Concordia CO	1375	971.2	-----	69	40	54.1	-1.8	86	3	25 7	0	8	-----	T	-1.97	T	0	0	0	0	6.9	-----	23	NE	14	23	5	3	2.2	84	
Dodge City	2594	933.0	1021.1	71	40	55.3	-----	82	3	25 28	1	4	24.37	T	-1.30	T	0	0	0	0	13.0	S	38	N	14	22	6	3	2.3	89	
Goodland	3645	893.0	1021.1	70	31	50.8	-3.2	86	3	13 7	0	18	20.40	.05	-.95	.05	1	0	2	0	10.9	WSW	*30	NW	3	21	8	2	2.6	--	
Topeka	926	985.8	1022.2	70	36	53.0	-----	87	1	20 29	0	11	30.50	.04	-2.44	.04	1	0	0	0	9.1	S	37	N	27	22	6	3	2.2	87	
Wichita	1372	972.2	1021.3	70	43	56.6	-2.0	88	1	30 28	0	3	24.33	.00	-2.59	.00	0	0	0	0	14.0	S	38	SW	3	24	3	4	2.0	91	
KENTUCKY																															
Lexington	979	985.1	1021.3	64	39	51.1	-6.3	89	1	24 21	0	7	33.57	1.17	-1.42	.57	6	0	T	0	11.3	SSW	-----	-----	21	4	6	3	1	--	
Louisville CO	457	-----	-----	65	43	54.0	-5.3	88	1	30 21	0	2	-----	.86	-.79	.81	5	1	T	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Louisville	485	1004.1	1020.8	65	39	51.9	-5.6	90	1	23 22	1	8	35.60	2.01	-.64	.92	5	1	T	0	7.9	S	32	N	20	22	3	6	3.1	74	
LOUISIANA																															
Baton Rouge	64	1016.9	1019.8	78	46	62.2	-6.9	94	2	32 30	2	1	43.61	.12	-3.33	.12	1	0	0	0	7.2	N	-----	-----	23	8	0	1	1.7	--	
Lake Charles	12	1019.0	1020.3	79	48	63.4	-6.3	95	2	38 29	2	0	46.65	T	-4.14	T	0	0	0	0	7.7	NE	30	NNE	7	24	5	2	1.5	--	
New Orleans CO	12	1017.3	-----	75	58	66.5	-4.5	92	2	45 21	1	0	-----	T	-3.30	T	0	0	0	0	6.8	-----	23	NE	20	25	5	1	1.5	93	
New Orleans	12	1017.3	1019.5	76	52	63.7	-----	92	2	36 30	1	0	49.68	.00	-----	.00	0	0	0	0	9.1	ESE	*27	N	6	22	7	2	2.0	--	
Shreveport	174	1010.2	1021.5	76	45	60.5	-6.5	93	1	31 29	3	1	39.55	.04	-2.63	.04	2	0	0	0	7.7	N	-----	-----	27	2	2	1.4	93		
MAINE																															
Caribou	624	989.2	1012.7	48	31	39.6	-1.9	65	3	18 21	0	18	33.79	4.80	+1.24	3.23	12	1	6.5	3	9.8	WSW	*33	NNW	29	4	5	22	7.9	--	
Eastport CO	33	1010.8	1013.5	54	41	47.5	-----	67	14	29 20	0	5	-----	2.42	-1.13	.96	9	4	T	0	8.8	-----	45	SW	28	10	9	12	6.0	51	
Portland	61	1011.2	1015.0	59	35	46.6	-2.1	72	14	18 26	0	13	38.75	1.85	-1.29	1.39	7	1	T	0	8.5	-----	43	SW	24	12	10	9	5.0	65	
MARYLAND																															
Baltimore CO	14	-----	-----	66	47	56.7	-1.5	82	2	34 21	0	0	-----	.74	-2.15	.38	5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Baltimore	146	1014.2	1019.1	66	41	53.2	-4.4	85	2	26 21	0	0	38.62	.51	-2.86	.35	5	1	T	0	9.9	SW	46	NW	2	18	6	7	3.7	68	
Frederick	294	-----	-----	64	36	50.2	-6.6	79	1	22 26	0	11	-----	1.60	-1.69	.88	5	1	0	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
MASSACHUSETTS																															
Blue Hill Obs.	640	991.8	-----	61	41	50.4	-----	75	14	25 21	0	5	-----	1.49	-2.19	.87	8	3	T	0	16.3	SSW	38	S	2	14	10	7	4.4	67	
Boston	12	1011.2	1015.7	62	44	53.0	-----	78	14	31 21	0	1	39.61	1.61	-1.54	.85	7	3	T	0	13.2	SW	32	NW	29	16	7	8	4.5	70	
Nantucket	43	1015.9	1016.3	60	47	53.5	-----	77	6	34 29	0	0	47.77	2.01	-1.38	1.29	4	2	T	0	13.7	SW	33	N	11	15	6	10	4.9	71	
Pittsfield	1153	972.9	1015.6	56	33	44.5	-2.3	71	6	20 21	0	16	-----	.78	-2.30	.63	3	1	2.0	2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
MICHIGAN																															
Alpena CO	587	994.2	-----	54	35	44.4	-2.7	80	1	24 18	0	11	-----	.26	-2.45	.14	6	0	1.4	1	10.8	-----	28	N	1	6	14	11	6.2	50	
Detroit	619	997.0	1018.9	58	38	48.1	-3.8	86	1	26 20	0	8	32.60	1.46	-.92	1.38	4	1	T	0	11.3	-----	42	NNW	1	12	9	10	4.9	67	
Escanaba CO	594	994.2	-----	52	33	42.3	-3.7	68	23	22 17	0	15	-----	.07	-2.56	.04	3	0	.1	T	11.2	-----	42	N	19	12	10	9	4.8	66	
Grand Rapids	628	993.2	1019.3	56	33	44.7	-3.7	79	1	21 21	0	17	32.70	.03	-2.78	.01	3	1	T	0	9.6	WSW	32	SW	22	11	10	7	4.4	79	
Lansing	859	986.8	1019.3	56	33	44.7	-5.6	79	1	21 18	0	17	31.67	.35	-2.12	.34	3	1	1	T	12.3	W	47	N	19	11	11	6	4.2	70	
Marquette CO	677	988.5	-----	51	34	42.8	-3.9	67	23	26 29	0	15	-----	.88	-1.88	.39	9	0	5.1	2	9.5	-----	32	SW	15	7	8	16	6.6	48	
Muskegon	627	981.7	1019.0	55	36	45.1	-6.7	73	1	22 21	0	13	31.71	.57	-2.13	.18	8	1	2.0	0	11.0	NNW	*38	SW	15	13	9	9	4.9	--	
Sault Ste. Marie	721	992.9	1016.2	49	32	40.4	-----	67	23	23 17	0	13	32.78	.72	-2.37	.22	10	0	2.1	0	10.1	SW	*33	NW	27	9	7	13	6.1	--	
Ypsilanti	722	990.2	1018.8	59	36	47.4	-----	85	1	25 20	0	10	31.62	1.67	-----	1.64	3	2	T	0	11.1	SW	*30	N	1	12	9	10	4.7	--	
MINNESOTA																															
Duluth	1128	975.3	1017.7	49	28	38.7	-----	65	23	12 17	0	22	26.68	.57	-1.74	.47	5	0	.5	T	14.5	NW	42	N	1	10	11	10	5.2	--	
Intern'l Falls	1179	973.1	1017.3	49	25																										



## CLIMATOLOGICAL DATA

OCTOBER 1952

Table 2-Continued

State and station	Elevation (ground)	Pressure			Temperature								Precipitation										Wind			No. of days (sunrise to sunset)													
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max 90° F or above	Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours			Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine							
																		In.	In.	In.	Ol inch or more	With thunderstorms											Total	Max depth on ground					
																																			No. of days	No. of days	No. of days		
																																						Fastest mile	To sunset)
Ft	Mb	Mb	°F	°F	°F	°F	°F	°F	°F	Date	Max 90° F or above	Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	In.	In.	In.	Ol inch or more	With thunderstorms	Total	Max depth on ground	Average hourly speed	Prevailing direction	Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine						
NEVADA																																							
Elko	5075	849.0	1020.4	76	27	51.0	---	84	2	19 15	0	26	20 34	T	0.00	---	---	T	0	1	0.0	0	0	0	3.3	E *30	NW	18 22	4	9	2.4	--							
Ely	6257	813.4	1020.3	78	28	50.6	-8.8	81	*2	19 15	0	27	---	---	0.00	-0.77	0.00	0	0	0	0	0	10.7	---	33	S	18 21	5	5	2.6	91								
Las Vegas	2162	949.2	1014.0	80	35	71.9	-8.2	98	3	47 *26	14	0	24 19	0	24	19	0.0	-.28	.00	0	0	0	0	3.5	WSW *17	NE	14 21	6	4	2.5	88								
Reno	474	865.6	1019.0	80	32	54.2	+5.7	87	2	25 28	0	17	33 52	0	17	33	0.4	-.32	.04	1	0	0	0	2.1	NNW	SW	18 21	3	4	2.6	90								
Sparks	474	871.7	1020.0	80	28	52.2	+3.9	86	2	21 *28	0	25	24 34	T	-.62	T	0	0	0	0	0	0	6.1	---	26	SW	18 23	4	4	2.1	93								
NEW HAMPSHIRE																																							
Concord	339	1004.4	1015.4	68	73	46.9	-.9	75	6	19 *26	0	17	35 67	1.14	-1.71	.97	7	1	1	1	1	7	6.4	NW	26	NW	20 10	15	6	4.9	61								
Mt. Washington	6288	801.5	1014.2	32	20	25.9	-3.8	49	2	3 20	0	28	---	84	3.50	-2.77	1.24	16	1	17.5	2	2	38.6	W *102	NNW	4	5	10	16	6.9	39								
NEW JERSEY																																							
Atlantic City CO	8	1015.9	1018.0	63	58	55.6	-1.3	80	14	29 21	0	1	---	---	.90	-2.30	.59	6	0	0	0	0	16.3	---	45	NW	28 18	6	7	3.4	79								
Newark	11	1016.6	1017.6	63	58	53.2	-2.4	79	10	28 21	0	4	40 63	---	.89	-2.90	.68	3	0	0	0	3	8.6	WSW *28	NW	22 15	8	8	4.1	--									
Trenton CO	11	1010.8	1018.0	63	52	53.1	-2.5	81	2	28 21	0	2	---	---	.47	-2.31	.46	2	1	1	1	T	8.7	---	49	NW	22 17	6	8	4.2	71								
NEW MEXICO																																							
Albuquerque	4911	852.4	1017.0	77	1	61.0	+4.4	85	4	35 15	0	0	26 28	0	0	26	0.0	-.81	.00	0	0	0	0	7.7	SE	38	E	14 25	4	2	1.7	93							
Carrizozo	4999	852.4	1020.1	71	38	54.4	-.3	86	3	24 15	0	9	20 30	T	1.32	T	0	0	0	0	0	0	---	---	---	---	---	25	5	1	1.3	--							
Deming	474	809.7	1020.2	70	1	50.7	---	79	10	18 15	0	19	---	---	0.00	---	.00	0	0	0	0	0	---	---	---	---	---	25	4	2	2.0	--							
Flagstaff	3612	897.1	1018.8	79	39	58.8	-.7	91	13	31 *16	2	3	27 34	0.00	-1.42	.00	0	0	0	0	0	0	8.9	---	26	NW	16 26	3	2	1.5	--								
NEW YORK																																							
Albany	101	1012.5	1019.4	58	35	46.6	-2.7	73	1	20 26	0	11	35 68	1.32	-1.10	.83	3	1	2.0	2	2	8.9	S	36	NW	21 8	13	10	5.5	77									
Albany	101	1012.5	1019.4	58	35	46.6	-2.7	73	1	20 26	0	11	35 68	1.32	-1.10	.83	3	1	2.0	2	2	8.9	S	36	NW	21 8	13	10	5.5	77									
Albany	101	1012.5	1019.4	58	35	46.6	-2.7	73	1	20 26	0	11	35 68	1.32	-1.10	.83	3	1	2.0	2	2	8.9	S	36	NW	21 8	13	10	5.5	77									
Albany	101	1012.5	1019.4	58	35	46.6	-2.7	73	1	20 26	0	11	35 68	1.32	-1.10	.83	3	1	2.0	2	2	8.9	S	36	NW	21 8	13	10	5.5	77									
Albany	101	1012.5	1019.4	58	35	46.6	-2.7	73	1	20 26	0	11	35 68	1.32	-1.10	.83	3	1	2.0	2	2	8.9	S	36	NW	21 8	13	10	5.5	77									
Albany	101	1012.5	1019.4	58	35	46.6	-2.7	73	1	20 26	0	11	35 68	1.32	-1.10	.83	3	1	2.0	2	2	8.9	S	36	NW	21 8	13	10	5.5	77									
Albany	101	1012.5	1019.4	58	35	46.6	-2.7	73	1	20 26	0	11	35 68	1.32	-1.10	.83	3	1	2.0	2	2	8.9	S	36	NW	21 8	13	10	5.5	77									
Albany	101	1012.5	1019.4	58	35	46.6	-2.7	73	1	20 26	0	11	35 68	1.32	-1.10	.83	3	1	2.0	2	2	8.9	S	36	NW	21 8	13	10	5.5	77									
Albany	101	1012.5	1019.4	58	35	46.6	-2.7	73	1	20 26	0	11	35 68	1.32	-1.10	.83	3	1	2.0	2	2	8.9	S	36	NW	21 8	13	10	5.5	77									
Albany	101	1012.5	1019.4	58	35	46.6	-2.7	73	1	20 26	0	11	35 68	1.32	-1.10	.83	3	1	2.0	2	2	8.9	S	36	NW	21 8	13	10	5.5	77									
Albany	101	1012.5	1019.4	58	35	46.6	-2.7	73	1	20 26	0	11	35 68	1.32	-1.10	.83	3	1	2.0	2	2	8.9	S	36	NW	21 8	13	10	5.5	77									
Albany	101	1012.5	1019.4	58	35	46.6	-2.7	73	1	20 26	0	11	35 68	1.32	-1.10	.83	3	1	2.0	2	2	8.9	S	36	NW	21 8	13	10	5.5	77									
Albany	101	1012.5	1019.4	58	35	46.6	-2.7	73	1	20 26	0	11	35 68	1.32	-1.10	.83	3	1	2.0	2	2	8.9	S	36	NW	21 8	13	10	5.5	77									
Albany	101	1012.5	1019.4	58	35	46.6	-2.7	73	1	20 26	0	11	35 68	1.32	-1.10	.83	3	1	2.0	2	2	8.9	S	36	NW	21 8	13	10	5.5	77									
Albany	101	1012.5	1019.4	58	35	46.6	-2.7	73	1	20 26	0	11	35 68	1.32	-1.10	.83	3	1	2.0	2	2	8.9	S	36	NW	21 8	13	10	5.5	77									
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Albany	101	1012.5	1019.4	58	35	46.6	-2.7	73	1	20 26</																													

See footnotes at end of table.



## CLIMATOLOGICAL DATA

OCTOBER 1952

Table 2-Continued

[illegible]

See footnotes at end of table.



## CLIMATOLOGICAL DATA

Table 2—Continued

OCTOBER 1952

State and station	Pressure						Temperature										Precipitation						Wind				No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset) Possible sunrise																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
	Elevation (ground)	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max 90° F or above	No. of days	Min 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		Date		Clear	Partly cloudy	Cloudy																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
																				.01 inch or more	With thunderstorms	Total	Max depth on ground			Speed	Direction																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	%	In.	In.	In.	In.	In.	In.	In.	In.	M p. h.	M p. h.	M p. h.	M p. h.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°</

Data from airport unless otherwise specified. CO indicates data from city office.

\* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

° Other dates also.

† Peak gust.



## HEATING DEGREE DAYS

(Base 65°F.)

OCTOBER 1952

Table 3

State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month	
	This month	Period July through this month	Period July through this month			This month	Period July through this month	Period July through this month			This month	Period July through this month	Period July through this month		
ALABAMA					NEW MEXICO					TEXAS (Cont'd.)					
Birmingham	267	268	100	Burlington	501	587	395	Albuquerque	131	147	252	Dallas	141	144	76
Mobile (CO)	116	116	44	Charles City (CO)	623	781	676	Clayton	329	394	389	Del Rio	18	18	35
Mobile	116	116		Davenport (CO)	473	537	429	Raton	437	598		El Paso	47	47	91
Montgomery (CO)	138	138	71	Des Moines	197	578	469	Roswell	200	217	217	Ft. Worth	107	107	75
Montgomery	170	170	75	Dubuque	629	804	553					Galveston (CO)	33	33	14
ARIZONA					Kearney (CO)	452						Galveston	36	36	
Flagstaff	424	730	902	Sioux City	530	616	546					Houston (CO)	51	51	
Phoenix (CO)	0	0	18	KANSAS								Houston	58	58	26
Phoenix	0	0		Concordia (CO)	344	373	350					Laredo	9	9	
Prescott	98	118		Dodge City	307	333	331					Lubbock	206	233	
Tucson	0	0		Goodland	436	526	440					Paestlane (CO)	114	114	71
Winslow	134	147		Topeka (CO)	321	346	314					Port Arthur (CO)	65	65	25
Yuma	0	0	9	Topeka	378	411						Port Arthur	94	94	
ARKANSAS					Wichita	275	291	261				San Antonio	100	100	
Ft. Smith	274	277	135	KENTUCKY								San Antonio	61	61	30
Little Rock	264	256	127	Lexington	435	471	304					Victoria	48	48	
Texarkana	201	201		Louisville (CO)	356	411	258					Waco	111	111	
CALIFORNIA					Louisville	411	412					Wichita Falls	129	129	
Bakersfield	4	11	67	Pikeville (CO)	346	350									
Beaumont (CO)	19	34		LOUISIANA											
Bishop	110	168	302	Baton Rouge	132	132	43								
Big Canyon	168	301		Lake Charles	102	102									
Burbank	29	34		New Orleans (CO)	68	68	23								
Eureka (CO)	322	1167	1160	New Orleans	78	78									
Fresno	18	34	82	Int. Airport, Moisant	96	96									
Los Angeles (CO)	13	13	57	Shreveport	184	184	75								
Los Angeles	55	99		MAINE											
Mt. Shasta (CO)	231	313		Caribou	782	1204									
Oakland	146	278	376	Eastport (CO)	534	905	1088								
Red Bluff	13	20	109	Greenville (CO)	729	1133	1180								
Sacramento (CO)	23	32	104	Portland	564	779	724								
Sacramento	53	64		MARYLAND											
Sandberg (CO)	34	82		Baltimore (CO)	264	272	254								
San Diego	21	23	80	Baltimore	366	394									
San Francisco (CO)	200	737	651	Frederick	455	530									
San Francisco	187	503	552	MASSACHUSETTS											
San Jose	78	106		Boston	368	432	458								
Santa Catalina	85	141		Milton	452	565									
Santa Maria	199	485		Nantucket	349	472	434								
COLORADO					Pittsfield	629	877								
Alamosa	626	985		MICHIGAN											
Colorado Springs	414	564		Alpena (CO)	631	892	898								
Denver	354	445	546	Detroit	521	629	541								
Grand Junction	231	245	408	Escanaba (CO)	691	1058	956								
Pueblo	354	417	463	Grand Rapids (CO)	555	683	578								
CONNECTICUT					Grand Rapids	626	779								
Bridgeport	377	420		Lansing	628	814	663								
Hartford	432	512	491	Marquette (CO)	680	1034	1008								
New Haven	411	484	443	Muskegon	609	700									
DELAWARE					Sault Ste. Marie	751	1120	1091							
Wilmington	391	427		Ypsilanti	546	656									
DIST. OF COLUMBIA					MINNESOTA										
Washington (CO)	295	309	288	Duluth (CO)	776	1214	1071								
Washington	304	323		Duluth	808	1235									
FLORIDA					International Falls	863	1372								
Apalachicola (CO)	55	55	18	Minneapolis	633	789	667								
Daytona Beach	17	17		Rochester	706	938									
Fort Myers	5	5	1	St. Cloud	722	789	819								
Jacksonville (CO)	49	49	23	St. Paul	635	784	675								
Jacksonville	48	48		MISSISSIPPI											
Key West (CO)	0	0	0	Jackson	217	217	84								
Key West	0	0		Meridian	251	251	78								
Melbourne	9	9		Vicksburg (CO)	185	185	75								
Miami (CO)	0	0	0	MISSOURI											
Int. Airport, Hialeah	0	0		Columbia	380	439	321								
Miami Beach	0	0		Kansas City	312	337	292								
Orlando	14	14		St. Joseph	402	442	334								
Pensacola (CO)	81	81	32	St. Louis (CO)	315	325	246								
Tallahassee	62	62		St. Louis	368	397									
Tampa	14	14	5	Springfield	383	418	278								
West Palm Beach	0	0		MONTANA											
GEORGIA					Billings	427	558								
Albany	104	104	40	Butte	647	1299									
Athens	219	219		Glasgow (CO)	592	781									
Atlanta (CO)	207	209	140	Great Falls	450	706									
Atlanta	202	202		Havre (CO)	564	785	944								
Augusta	199	199	84	Helena	563	846	996								
Columbus	180	180		Kalispell	575	1032	1136								
Macon	150	150	91	Miles City	522	660									
Rome	360	307		Missoula	514	826	980								
Savannah	115	115	43	NEBRASKA											
Valdosta	82	82		Grand Island	439	510									
IDAHO					Lincoln (CO)	404	445	116							
Boise	247	331	547	Lincoln	448	501									
Lewiston	273	342		Norfolk	499	584									
Pocatello	387	487	684	North Platte	522	625	560								
ILLINOIS					Omaha	445	505	430							
Cairo (CO)	310	314	200	Scottsbluff	441	546									
Chicago (CO)	134	493	432	Valentine (CO)	520	639	675								
Chicago	502	593		NEVADA											
Chicago University	461	538		Elko	423	583									
Joliet	601	725		Ely	439	644									
Moline	565	671		Las Vegas	1	1									
Peoria	511	596	431	reno	330	353	589								
Springfield (CO)	380	418	346	Tonopah	146	221									
Springfield	479	548		Winneumca	388	547	723								
INDIANA					NEW HAMPSHIRE										
Evansville	409	417	246	Concord	554	731	749								
Ft. Wayne	553	679	910	Mt. Washington	1205	2763									
Indianapolis (CO)	107	460	369	NEW JERSEY											
Indianapolis	172	546		Atlantic City (CO)	300	312	289								
South Bend	555	661		Newark	360	392	367								
Terre Haute	461	539		Trenton	367	396	353								



# SEVERE STORMS

Table 4

OCTOBER 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Indianapolis, Ind.	1	4:15 p.m.			1		\$10,000		Wind, electrical, and rain	Squall line accompanied by thunderstorm and winds to 65 m.p.h. toppled trees and TV antennae throughout city. Power lines broken in several parts of city; also, 2 main telephone cables. Lightning toppled a tree in path of an automobile, indirectly causing 1 death and 2 injuries.
Detroit and vicinity, Mich.	1	5:25-6 p.m.			2		50,000		do	Winds reached 62 m.p.h. in gusts as cold front, accompanied by thunderstorms, moved through area. Man killed when his boat was upset in Lake St. Clair. Woman ran into path of car when her vision was blocked by umbrella during height of storm. Some trees uprooted, knocking down electric wires and snarling automobile traffic. Most damage occurred in northwestern Detroit. Fire department was busy putting out brush fires set mostly by lightning.
New York, western portion	1						50,000		Wind and electrical	High winds, accompanying thunderstorms, uprooted trees and felled power lines. Lightning fired 2 barns and struck 1 house in Niagara County. Barns near Rochester and Albion also burned after lightning strikes.
Jurcou, Alaska	1-2	During night					25,000		Rain	Continuous rain during latter part of September and during night of October 1 and 2 caused a landslide on steep slope of Gastineau Peak. A tree broke loose and fell on a house, breaking it into sections. Another house partially damaged.
Leesburg County, Va.	2	Afternoon			1				Electrical	Man killed by lightning while inside a tin-roofed shed at Oakhill, 12 miles west of Leesburg. Several others in shed uninjured.
New London and Windham Counties, Conn.	2	Afternoon and evening					1,800	Minor	Rain, wind, electrical, and hail	Thunderstorms swept over area, producing 2.43 inches of rain at Putnam, Conn., and causing street flooding. Some water damage to parked cars. Wind gusts, estimated at 50 m.p.h. at New London, Conn., uprooted trees and blew down limbs. Lightning damaged homes and disrupted electric service. Windows broken by hail in a few instances. Estimated property losses include \$500 from rain, \$200 from wind, \$1,000 from lightning, and \$100 from hail.
Worcester and Middlesex Counties, Mass., and vicinity of Nashua, N. H.	2	Afternoon and evening				5	12,000		Electrical, wind, and rain	Worcester, Mass., and surrounding communities suffered \$5,000 lightning losses as bolts struck dwellings, trees, and utility lines. Middlesex County towns suffered equal losses, mainly from small house fires. 5 persons in western Concord stunned by lightning, none seriously injured. Wind gusts reached 45 m.p.h., at Worcester Airport about 8 p.m., and 50 m.p.h., at Bedford Airport; garage blown over in western Concord; trees and power lines downed over whole affected area; total property losses from wind estimated at \$2,000. Telephone and electric services interrupted; streets and highways littered by fallen trees and flooded by generally 1- to 2-inch rain.
York County, Pa.	2	3-4 p.m.				Sev- eral			Electrical, wind, rain, and hail	Heaviest damage centered in Spring Grove-Stewarts-town area. Lightning-set fire destroyed a barn, its contents, and a silo alongside of it, with loss of \$15,000. At another farm, house unroofed, and 125-ft. long chicken house blown down, with loss of over \$10,000. At another farm, wind-blown cement blocks and rain destroyed large number of cases of eggs, and a flying cement block injured 1 worker. 3 brooder houses, a smokehouse, and a house roof damaged, and all clothing stored in attic was sucked out and carried away. Damage of \$5,000 to barn when wind moved it more than 12 inches off its foundation, and tore off the door and about two-thirds of the roof. Wind damage to a church estimated at over \$10,000. Hail caused \$300 damage to a greenhouse near Spring Grove, damaged apples in many orchards, and with high winds damaged or ruined corn in several fields. Much other minor damage to trees, wires, roofs, and small buildings.
Reading, Pa.	2	4:15 p.m.							Winds, rain, and electrical	During thunderstorm, winds with gusts to 75 m.p.h. hit area, toppling trees, utility lines, TV antennae, damaging buildings, windows, and chimneys, and unroofing at least 1 house. Boy blown by wind into street where current of water from heavy rains carried him down street before being rescued. Low sections temporarily flooded, and some washouts occurred in Reading. High winds knocked down transmitter of Pottstown radio station, and

See footnote at end of table.



# SEVERE STORMS

Table 4—Continued

OCTOBER 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Philadelphia- Reading area, Pa. (Cont'd.)	2									disrupted power services in Boyertown. Lightning struck and burned convent in Swedesburg.
Mercer and Burlington Counties, N. J.	2	P.m.					\$15,000		Electri- cal, wind, and rain	Damage to roofs, windows, trees, and power and communication lines.
Maryland, central portion, especially in Freder- ick	2	P.m.				2			Wind	High winds, accompanying thunderstorms, caused considerable damage. 3,000 telephones put out of service; 1,500 people marooned in grandstand at Frederick County fair grounds; trees toppled on exhibition tents; roof blown off house; boy injured by crowd rushing for shelter; man had nose broken by falling debris. At Conowingo some utility and telephone lines and poles down. At Hancock some damage to apple crop. In south Baltimore, some windowpanes blown out; trees and big branches blown down in eastern, western, and northern suburbs. 2 sailboats capsized in Bay, 1 at Annapolis, the other in Magothy River.
Long Island, N. Y.	2	5:30-7 p.m.							do	High winds, accompanying a thunderstorm, felled trees and broke power lines. More than 15,000 electrical services interrupted in Queens County, 8,000 in Nassau County, and 500 in western Suffolk.
Eklutna, Alaska	3-4	During night							do	High winds blew 2 float planes out of Bear Lake and wrecked both. Winds up to 37 m.p.h. reported at Anchorage.
Saginaw Bay, Mich.	5				2				do	Two men drowned when boat upset by high winds.
Annette, Alaska	10 and 19	1 p.m., 10th- 11:59 p.m., 19th							do	Tie down ropes broke loose on a light aircraft parked at Annette Intermediate Landing Field, causing considerable damage to wing spars and associated parts. Other damage may have occurred in vicinity.
Saint Helena, Calif.	17-18								Electri- cal	Walnut dehydrator struck by lightning and burned to ground.
Wilkes-Barre and Pocono Mountain areas, Pa.	20	3:30-8 a.m.							Snow	Sudden early-season snowstorm, ranging up to 4 inches in depth, stalled dozens of motorists on hills, with several cars sliding off highways.
Florida, upper East Coast and Peninsular portions	20-22				3		150,000	Minor	Wind (north- east storm)	Crew of fishing boat drowned when their boat sank near Cape Canaveral. Property damage largely to fishing boats and barges. 3 fishing boats and several barges sank near coast, some in Atlantic and some in Gulf of Mexico. Other craft damaged, but remained afloat. Seawalls along beaches pounded by high seas and strong currents. Wind speeds between 50 and 60 m.p.h. reported from points on Atlantic and Gulf Coasts during 3-day period.

° Crop damage included with other property damage.



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

## OCTOBER 1952

This was the first month since November 1939 that no overflows were reported at any of our river gaging stations throughout the country. All rivers remained at low stages with very little fluctuation. Record to near record low stages were reported at several points as widespread drought conditions continued unabated throughout the month. For the country as a whole, it was the driest of any month since nation-wide records were begun in 1893.

The Alabama and Cahaba Rivers approached within 0.2 foot of the lowest stages of record at Millers Ferry, Ala., and Marion Junction, Ala.,

respectively. Record low stages were reported on the Kansas River at Fort Riley (1.9 feet) and Wamego, Kans., (0.25 foot) and on the Republican River at Concordia, Kans., (0.95 foot). However, discharge measurements by the U. S. Geological Survey did not indicate the volume of flow as low as during previous dry periods. At Topeka, Kans., for example, the discharge on the Kansas River was about four times greater than the minimum observed in 1936 and six times greater than the 1934 minimum. Lake Fork of the Sabine River in Texas was dry throughout the month.



# RADIOSONDE DATA

Average monthly values

OCTOBER 1952

Table 20

ALBUQUERQUE, N. MEX. ( 842 MB.)					ATLANTA, GA. ( 984 MB.)					BIG SPRING, TEX. ( 930 MB.)					BISMARCK, N. DAK. ( 959 MB.)					BOISE, IDAHO ( 919 MB.)					BROWNSVILLE, TEX. (1018 MB.)					BUFFALO, N. Y. ( 991 MB.)														
Standard pressure surface (mb.)					Number of observations					Dynamic height					Temperature					Relative humidity					Number of observations					Dynamic height					Temperature					Relative humidity				
SURFACE	31	1,629	17.0	27	31	309	13.5	61	31	784	18.1	30	31	505	6.1	52	31	868	12.9	44	31	7	20.4	70	31	221	7.8	70																
1,000----	31	109			31	168			31	149			31	158			31	146			31	166	22.4	62	31	148																		
950----	31	584			31	605	15.2	45	31	599			31	585	7.8	47	31	590			31	614	19.4	58	31	574	6.7	62																
900----	31	1,037			31	1,060	12.8	47	31	1,061	18.6	27	31	1,030	7.5	41	31	1,046	18.3	28	31	1,074	16.7	46	31	1,014	4.1	61																
850----	31	1,532			31	1,538	10.5	42	31	1,549	16.0	29	31	1,498	5.1	40	31	1,534	16.4	25	31	1,558	14.2	31	31	1,477	2.0	58																
800----	31	2,054	17.2	19	31	2,041	8.6		31	2,061	13.1	32	31	1,990	2.5	42	31	2,046	13.1	25	31	2,067	11.7	25	31	1,964	-3.3	53																
750----	31	2,601	13.1	20	31	2,580	6.7		31	2,606	9.9	31	31	2,515	-1.1	39	31	2,591	9.4	25	31	2,613	9.3		31	2,485	-2.3	53																
700----	31	3,175	8.7	22	31	3,136	3.6		31	3,169	6.3	23	31	3,058	-3.0	37	31	3,152	5.6	26	31	3,173	6.4		31	3,024	-4.3	48																
650----	31	3,783	3.7	25	31	3,739	.3		31	3,778	2.4		31	3,646	-6.0	36	31	3,756	1.5	29	31	3,784	2.6		31	3,610	-7.1	49																
600----	31	4,426	-1.4	28	31	4,370	-3.7		31	4,413	-2.4		31	4,264	-9.7	33	31	4,393	-2.7	29	31	4,419	-1.1		31	4,226	-10.8	52																
550----	31	5,108	-6.6	29	31	5,054	-8.3		31	5,100	-7.0		31	4,934	-14.0	32	31	5,077	-7.3	27	31	5,111	-5.1		31	4,896	-14.5	45																
500----	31	5,850	-11.8		31	5,785	-13.3		31	5,833	-12.4		31	5,647	-18.9	31	31	5,812	-12.5		31	5,851	-10.0		31	5,607	-19.3	40																
450----	31	6,660	-17.8		31	6,583	-19.1		31	6,634	-18.4		31	6,432	-24.3		31	6,610	-18.7		31	6,656	-15.7		31	6,387	-24.7																	
400----	31	7,518	-24.4		31	7,444	-25.5		31	7,498	-25.0		31	7,271	-30.4		31	7,475	-25.2		31	7,513	-22.0		31	7,229	-30.6																	
350----	31	8,476	-31.8		31	8,397	-32.4		31	8,453	-32.6		31	8,205	-37.8		31	8,430	-32.7		31	8,459	-29.4		31	8,165	-37.4																	
300----	31	9,547	-40.3		31	9,470	-38.8		31	9,521	-40.7		31	9,249	-45.8		31	9,497	-40.8		31	9,531	-37.2		31	9,214	-44.2																	
250----	31	10,766	-48.9		31	10,702	-46.3		31	10,738	-48.9		31	10,447	-52.8		31	10,714	-49.3		31	10,745	-45.8		31	10,419	-50.5																	
200----	31	12,204	-56.8		31	12,158	-54.5		31	12,178	-56.0		31	11,865	-56.5		31	12,154	-56.9		31	12,189	-55.2		31	11,859	-54.5																	
175----	31	13,042	-60.4		31	13,005	-58.4		31	13,016	-59.6		31	12,711	-57.0		31	12,990	-59.4		31	13,010	-60.5		31	12,720	-55.2																	
150----	31	13,993	-63.8		31	13,954	-62.6		31	13,970	-62.5		31	13,681	-58.0		31	13,950	-61.3		31	14,056	-60.7		31	13,585	-56.4																	
125----	31	15,143	-69.8		31	15,077	-67.1		31	15,097	-65.4		31	14,828	-59.0		31	15,150	-63.4		31	15,179	-69.5		31	14,833	-57.5																	
100----	31	16,469	-67.6		31	16,428	-66.4		31	16,440	-66.8		31	16,231	-59.5		31	16,442	-64.2		31	16,472	-70.8		31	16,248	-58.4																	
80----	31	17,811	-65.8		31	17,788	-63.6		31	17,789	-65.3		31	17,631	-59.4		31	17,816	-63.2		31	17,801	-67.0		31	17,643	-57.3																	
60----	31	19,576	-61.5		31	19,565	-60.8		31	19,562	-61.1		31	19,431	-58.7		31	19,591	-61.6		31	19,555	-63.0		31	19,462	-57.1																	
50----	31	20,713	-59.1		31	20,700	-58.1		31	20,697	-59.6		31	20,574	-59.0		31	20,722	-60.5		31	20,684	-60.3		31	20,618	-56.0																	
40----	31	22,117	-56.5		31	22,104	-56.6		31	22,083	-57.7		31	21,969	-57.3		31	22,120	-58.5		31	22,074	-57.3		31	22,047	-55.2																	
30----	31				31	23,931	-53.8		31	23,918	-55.6		31	23,766	-56.5		31	23,957	-55.4		31	23,886	-52.8																					

BUREAU, LA. (1018 MB.)					CARIBOU, MAINE ( 990 MB.)					CHARLESTON, S. C. (1017 MB.)					COLUMBIA, MO. ( 992 MB.)					DODGE CITY, KANS. ( 930 MB.)					EL PASO, TEX. ( 884 MB.)					ELY, NEV. ( 813 MB.)														
Standard pressure surface (mb.)					Number of observations					Dynamic height					Temperature					Relative humidity					Number of observations					Dynamic height					Temperature					Relative humidity				
SURFACE	31	31	19.3	76	31	191	3.5	81	31	13	13.8	89	31	238	11.0	40	31	792	12.2	34	31	1,195	19.4	26	31	1,908	10.1	26																
1,000----	31	159	19.8	59	31	104			31	160	17.6	67	31	172			31	169			31	113			31	131																		
950----	31	600	16.5	55	31	524	3.9	75	31	601	15.7	60	31	607	12.6	31	31	608			31	572			31	581																		
900----	31	1,057	13.7	50	31	960	1.8	73	31	1,055	13.5	52	31	1,055	9.5	34	31	1,065	15.1	26	31	1,040			31	1,046																		
850----	31	1,537	12.0	37	31	1,419	-6	68	31	1,534	11.1	47	31	1,527	7.5	31	31	1,547	13.1	28	31	1,537	21.2	19	31	1,531																		
800----	31	2,043	10.4	25	31	1,901	-2.9	63	31	2,038	9.3	31	31	2,024	5.5	31	31	2,054	10.4	29	31	2,057	17.4	21	31	2,043	16.0	16																
750----	31	2,586	7.9		31	2,586	7.9		31	2,583	7.3		31	2,560	3.6	27	31	2,594	7.6	28	31	2,602	13.2	22	31	2,594	13.3																	
700----	31	3,143	4.8		31	2,951	-7.4	54	31	3,136	4.4		31	3,107	1.7	29	31	3,153	4.4	25	31	3,179	8.9	25	31	3,163	8.3																	
650----	31	3,744	1.0		31	3,532	-10.0	49	31	3,740	.8		31	3,705	-2.7	31	31	3,754	1.5	27	31	3,789	4.2	26	31	3,772	3.1	22																
600----	31	4,381	-2.8		31	4,139	-13.6	47	31	4,373	-3.2		31	4,328	-6.6	36	31	4,389	-3.7	28	31	4,432	-3.3		31	4,412	-1.5																	
550----	31	5,066	-7.2		31	4,802	-17.6	42	31	5,056	-7.6		31	5,008	-11.1	40	31	5,068	-8.7	29	31	5,120	-5.0		31	5,097	-6.1																	
500----	31	5,801	-12.2		31	5,502	-23.2	38	31	5,792	-13.2		31	5,728	-16.1	37	31	5,800	-14.3	31	31	5,865	-10.4		31	5,838	-11.1																	
450----	31	6,602	-17.9		31	6,277	-27.6		31	6,594	-17.9		31	6,519	-22.0	34	31	6,593	-20.3		31	6,677	-16.4		31	6,644	-17.2																	
400----	31	7,468	-24.1		31	7,106	-33.4		31	7,461	-23.5		31	7,368	-28.7		31	7,452	-26.9		31	7,537	-23.1		31	7,509	-24.0																	
350----	31	8,428	-30.6		31	8,030	-39.9		31	8,404	-29.8		31	8,308	-34.3		31	8,398	-34.3		31	8,505	-30.6		31	8,468	-31.3																	
300----	31	9,507	-37.3		31	9,067	-45.9		31	9,505	-37.5		31	9,359	-44.4		31	9,359	-44.4		31	9,581	-38.8		31	9,540	-39.8																	
250----	31	10,743	-45.2		31	10,266	-50.1		31	10,739	-46.0		31	10,558	-52.1		31	10,666	-50.9		31	10,807	-47.5		31	10,759	-48.8																	
200----	31	12,198	-54.5		31	11,708	-52.2		31	12,189	-56.0		31	11,986	-56.3		31	12,099	-56.4		31	12,252	-56.5		31	12,198	-57.0																	
175----	31	13,041	-59.5		31	12,571	-52.6		31	13,028	-60.8		31	12,830	-58.1		31	12,948	-59.1		31	13,089	-60.6		31	13,036	-60.2																	
150----	31	13,992	-64.4		31	13,562	-54.4		31	13,978	-65.0		31	13,796	-60.0		31	13,916	-61.5		31	14,042	-63.8		31	13,989	-62.8																	
125----	31	15,096	-67.8		31	14,726	-55.3		31	15,077	-67.3		31	14,927	-62.1		31	15,039	-63.8		31	15,150	-66.8		31	15,105	-64.9																	
100----	31	16,432	-68.3		31	16,147	-55.5		31	16,418	-67.0		31	16,307	-61.7		31	16,404	-64.1		31	16,486	-69.3		31	16,456	-65.5																	
80----	31	17,781	-64.4		31	17,573	-55.1		31	17,773	-63.7		31	17,697	-60.1		31	17,789	-62.8		31	17,875	-67.8		31	17,810	-66.0																	
60----	31	19,550	-61.1		31	19,335	-56.2		31	19,550	-60.6		31	19,498	-58.3		31	19,581	-60.3		31	19,729	-67.8		31	19,658	-64.0																	
50----	31	20,687	-59.0		31	20,554	-55.5		31	20,695	-58.4		31	20,650	-56.8		31	20,716	-59.1		31	20,703	-60.1		31	20,683	-61.9																	
40----	31	22,111	-55.8		31	21,991	-54.2		31	22,103	-56.4		31	22,074	-54.8		31																											

BURRWOOD, LA. (1018 MB.)					CARIBOU, MAINE (990 MB.)					CHARLESTON, S. C. (1017 MB.)					COLUMBIA, MO. (992 MB.)					DODGE CITY, KANS. (930 MB.)					EL PASO, TEX. (884 MB.)					ELY, NEV. (813 MB.)				
SURFACE	31	3	19.3	76	31	191	3.5	81	31	13	13.8	89	31	238	11.0	40	31	792	12.2	34	31	1,195	19.4	26	31	1,908	10.1	26						
1,000----	31	159	19.8	59	31	104			31	160	17.6	67	31	172			31	169			31	113			31	131								
950----	31	600	16.5	55	31	524	3.9	75	31	601	15.7	60	31	607	12.6	31	31	608			31	572			31	581								
900----	31	1,057	13.7	50	31	960	1.8	73	31	1,055	13.5	52	31	1,055	9.5	34	31	1,065	15.1	26	31	1,040			31	1,046								
850----	31	1,537	12.0	37	31	1,419	-6.6	68	31	1,534	11.1	47	31	1,527	7.5	31	31	1,547	13.1	28	31	1,537	21.2	19	31	1,531								
800----	31	2,043	10.4	25	31	1,901	-2.9	63	31	2,038	9.3	31	31	2,024	5.5	31	31	2,054	10.4	29	31	2,057	17.4	21	31	2,043	16.0	16						
750----	31	2,586	7.9		31	2,417	-4.7	61	31	2,583	7.3		31	2,560	3.6	27	31	2,594	7.6	28	31	2,602	13.2	22	31	2,594	13.3							
700----	31	3,143	4.8		31	2,951	-7.1	54	31	3,136	4.4		31	3,107	-7.7	29	31	3,153	4.4	25	31	3,179	8.9	25	31	3,163	8.3							
650----	31	3,746	1.0		31	3,532	-10.0	49	31	3,740	8.8		31	3,705	-2.7	31	31	3,754	-5.5	27	31	3,789	4.2	26	31	3,772	3.1	22						
600----	31	4,381	-2.8		31	4,139	-13.6	47	31	4,373	-3.2		31	4,328	-6.6	36	31	4,389	-3.7	28	31	4,433	-3.3		31	4,412	-1.5							
550----	31	5,066	-7.2		31	4,802	-17.6	42	31	5,056	-7.6		31	5,008	-11.1	40	31	5,068	-8.7	29	31	5,120	-5.0		31	5,097	-6.1							
500----	31	5,801	-12.2		31	5,502	-22.3	38	31	5,792	-12.3		31	5,728	-16.1	37	31	5,800	-14.3	31	31	5,865	-10.4		31	5,838	-11.3							
450----	31	6,602	-17.9		31	6,277	-27.6		31	6,594	-17.9		31	6,519	-22.0	34	31	6,593	-20.3		31	6,677	-16.4		31	6,644	-17.2							
400----	31	7,468	-24.1		31	7,106	-33.4		31	7,461	-23.5		31	7,368	-28.7		31	7,452	-26.9		31	7,543	-23.1		31	7,509	-24.0							
350----	31	8,428	-30.6		31	8,030	-39.9		31	8,424	-29.9		31	8,308	-36.3		31	8,398	-34.3		31	8,505	-30.6		31	8,468	-31.3							
300----	31	9,507	-37.3		31	9,067	-45.9		31	9,505	-37.5		31	9,359	-44.4		31	9,458	-42.3		31	9,581	-38.8		31	9,540	-39.8							
250----	31	10,743	-45.2		31	10,266	-50.1		31	10,739	-46.0		31	10,558	-52.1		31	10,666	-50.9		31	10,807	-47.5		31	10,759	-48.8							
200----	28	12,198	-54.5		29	11,708	-52.2		31	12,189	-56.0		31	11,986	-56.3		31	12,099	-56.4		31	12,252	-56.5		31	12,198	-57.0							
175----	28	13,044	-57.8		29	12,571	-52.6		31	12,830	-52.8		31	12,830	-52.8		28	12,948	-51.9		31	13,089	-52.0		31	13,036	-60.2							
150----	27	13,992	-64.4		29	13,562	-54.4		31	13,978	-65.0		31	13,796	-60.0		26	13,916	-61.5		29	14,042	-63.8		31	13,989	-62.8							
125----	25	15,096	-67.8		29	14,726	-55.3		27	15,077	-67.3		31	14,927	-62.1		25	15,039	-63.8		28	15,150	-66.8		28	15,105	-64.9							
100----	23	16,432	-68.3		29	16,147	-55.5		25	16,418	-67.0		29	16,307	-61.7		22	16,404	-64.1		27	16,489	-69.3		27	16,459	-66.6							
80----	21	17,781	-64.4		26	17,567	-55.3		19	17,773	-63.7		29	17,691	-60.1		20	17,781	-62.8		24	17,875	-67.8		26	17,810	-66.0							
60----	19	19,550	-61.1		24	19,395	-56.2		18	19,550	-60.3		26	19,496	-58.3		11	19,581	-60.3		22	19,575	-62.3		24	19,558	-64.0							
40----	17	20,687	-59.0		24	20,554	-55.5		16	20,695	-58.4		25	20,650	-56.8		7	20,716	-59.1		21	20,703	-60.1		20	20,683	-61.9							
50----	9	22,111	-55.8		17	21,991	-54.2		15	22,103	-56.4		21	22,074	-54.8						19	22,100	-57.4		17	22,083	-58.4							
30----					8	23,864	-52.7		8	23,941	-53.6		15	23,925	-51.7						11	23,937	-53.6		11	23,896	-55.6							



# RADIOSONDE DATA

Average monthly values

OCTOBER 1952

Table 20—Continued

JOLIET, ILL. (998 MB.)				LAKE CHARLES, LA. (1020 MB.)				LANDER, WYO. (833 MB.)				LAS VEGAS, NEV. (938 MB.)				LITTLE ROCK, ARK. (1011 MB.)				MAZATLAN, MEXICO (1008 MB.)				MEDFORD, ORE. (970 MB.)			
Standard pressure surface (ft.)																											
Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations			
Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height			
Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				Temperature			
Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity			
SURFACE	31	179	6.7	31	5	15.5	65	31	1,696	10.4	37	31	660	21.4	21	31	79	11.7	59	31	14	29.0	75	31	401	15.7	67
1,000--	31	165	3.8	31	172	19.1	44	31	1,139			31	97			31	174	15.8	41	31	89	28.4	77	31	143		
500--	31	593	8.8	31	609	16.8	38	31	585			31	554			31	613	15.3	30	31	557	26.1	68	31	590	20.4	48
800--	31	1,035	6.1	31	1,069	13.8	39	31	1,046			31	1,026	26.3		31	1,065	12.4	33	31	1,020	24.2	58	31	1,048	18.8	41
750--	31	1,501	3.8	31	1,548	11.6	35	31	1,527			31	1,526	22.5		31	1,542	10.5	30	31	1,519	21.1	55	31	1,536	15.8	40
600--	31	1,991	1.7	31	2,053	9.9	25	31	2,038	12.1	31	31	2,048	18.2		31	2,047	8.6	27	31	2,041	18.1	45	31	2,047	12.6	38
700--	31	2,515	-8	31	2,593	7.4		31	2,584	9.0	31	31	2,599	13.5	18	31	2,585	6.7	25	31	2,595	14.4	43	31	2,592	9.0	34
500--	31	3,058	-3.2	31	3,151	4.2		31	3,142	5.3	33	31	3,171	9.2		31	3,139	3.9	23	31	3,169	10.5	43	31	3,152	5.3	31
700--	31	3,646	-6.1	31	3,750	3.3		31	3,747	1.1	35	31	3,790	5.1		31	3,741	1.1	25	30	3,787	6.2	44	31	3,758	1.8	31
600--	31	4,264	-9.6	31	4,383	1.8		31	4,381	-3.4	37	31	4,428	4.1		31	4,373	-4.2	30	30	4,432	1.6		31	4,394	-2.4	31
550--	30	4,933	-13.7	31	5,066	-8.5		31	5,066	-8.1	36	31	5,121	-4.6		31	5,053	-9.0	31	30	5,130	-3.0		31	5,082	-7.0	
500--	30	5,648	-18.1	31	5,799	-13.6		31	5,796	-13.1	36	31	5,862	-10.3		31	5,784	-13.9		30	5,875	-7.5		31	5,815	-12.1	31
450--	30	6,432	-23.5	30	6,593	-19.3		31	6,593	-19.1	33	31	6,675	-16.3		31	6,579	-19.8		30	6,697	-12.8		31	6,618	-18.1	
400--	29	7,275	-29.7	30	7,457	-25.7		31	7,455	-25.7	32	31	7,540	-22.9		31	7,438	-26.5		30	7,577	-18.8		31	7,481	-24.6	32
350--	29	8,212	-37.1	26	8,407	-32.7		31	8,408	-32.9		29	8,501	30.3		31	8,388	-34.0		30	8,557	-25.8		31	8,438	-32.2	
300--	29	9,259	-44.9	23	9,475	-40.0		30	9,473	-40.9		29	9,578	-38.7		31	9,449	-42.0		29	9,652	-34.2		31	9,507	-40.3	
250--	25	10,170	-51.7	30	10,700	-46.7		30	10,688	-49.5		29	10,805	-47.7		31	10,662	-49.3		29	10,901	-43.7		31	10,726	-49.1	
200--	26	11,902	-55.7	20	12,152	-53.8		29	12,126	-56.1		28	12,245	-56.7		30	12,108	-54.7		24	12,366	-54.7		31	12,164	-56.6	
150--	24	12,757	-56.3	20	13,011	-58.4		29	12,970	-58.2		27	13,081	-60.4		30	12,956	-57.5		23	13,208	-60.6		31	13,006	-58.7	
100--	21	13,717	-58.0	19	13,968	-62.8		27	13,939	-59.8		24	14,036	-62.5		30	13,922	-60.4		22	14,152	-66.2		31	13,969	-60.7	
75--	19	14,863	-59.8	16	15,084	-67.3		24	15,080	-62.2		22	15,150	-65.3		30	15,049	-63.1		19	15,248	-71.4		31	15,094	-63.8	
50--	17	16,253	-60.6	14	16,427	-68.8		21	16,427	-68.8		21	16,500	-67.1		31	16,416	-64.1		17	16,558	-75.1		31	16,455	-64.6	
0--	13	19,164	-58.6	13	17,768	-65.7		17	17,829	-61.7		18	17,850	-67.0		29	17,781	-62.5		10	17,831	-72.0		30	17,816	-64.2	
50--	13	20,605	-57.6	9	20,661	-60.5		14	19,631	-60.4		15	19,597	-64.7		29	19,567	-59.4		10	19,569	-66.2		29	19,587	-61.6	
0--	11	22,012	-56.1	7	22,059	-57.7		11	20,777	-59.1		14	22,105	-59.0		27	20,711	-57.9		9	20,688	-63.8		25	20,712	-61.6	
30--	9	23,890	-53.4	5	23,863	-54.1		7	22,208	-55.9		12	23,921	-55.2		20	22,121	-55.7		9	22,064	-60.9		25	22,096	-59.7	
15--												9	26,553	-51.7		12	23,980	-52.9		6	23,872	-56.2		16	23,905	-57.3	
												5	28,453	-49.2													

MERIDA, MEXICO (1013 MB.)				MIAMI, FLA. (1014 MB.)				NANTUCKET, MASS. (1015 MB.)				NASHVILLE, TENN. (1000 MB.)				NORTH PLATTE, NEBR. (922 MB.)				OAKLAND, CALIF. (1016 MB.)				OKLAHOMA CITY, OKLA. (974 MB.)				
Standard pressure surface (ft.)																												
Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				
Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				
Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				
Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				
SURFACE	22	27	23.9	31	1	24.2	88	31	14	11.9	80	31	177	10.6	68	31	849	8.4	48	31	6	15.4	81	31	391	14.6	4	
1,000--	22	139	23.9	30	1	24.1	84	31	135	12.5	72	31	176	9.2	62	31	162			31	139	15.0	78	31	164			
500--	22	593	21.6	79	31	577	23.0	80	31	564	10.3	64	31	603	12.6	41	31	600	12.6	41	31	588	17.8	56	31	605	17.3	26
800--	22	1,056	18.4	73	31	1,043	16.4	77	31	1,012	7.7	58	31	1,058	10.1	40	31	1,050	13.1	31	31	1,058	18.2	35	31	1,051	18.8	27
750--	22	1,544	15.5	79	31	1,533	16.4	77	31	1,481	5.8	51	31	1,528	8.6	36	31	1,528	11.2	29	31	1,526	16.2	29	31	1,542	12.2	31
600--	22	2,057	13.1	72	31	2,048	13.6	75	31	1,976	3.7	47	31	2,032	7.1		31	2,031	8.4	30	31	2,039	13.9		31	2,048	10.2	30
550--	22	2,601	10.6	69	31	2,594	10.7	72	31	2,505	1.2	39	31	2,568	4.8		31	2,571	5.3	31	31	2,587	10.6		31	2,591	7.9	30
500--	22	3,172	8.3	64	31	3,162	7.4	69	31	3,049	-1.8	38	31	3,119	1.7	29	31	3,122	2.1	29	31	3,150	6.9		31	3,147	4.6	31
450--	22	3,789	5.5	60	31	3,773	4.4	64	31	3,637	-5.2	41	31	3,716	-1.3	29	31	3,720	-1.2	30	31	3,761	3.1		31	3,752	1.1	31
400--	22	4,433	2.2	31	4,418		62	30	4,257	-18.8	33	31	4,346	-5.4	30	31	4,350	-5.5	32	31	4,399	-9		31	4,385	-8.3	32	
350--	22	5,132	-1.5	31	5,111	-3.1	54	30	4,929	-13.0		31	5,023	-10.0		31	5,027	-9.9	33	31	5,086	-5.7		31	5,069	-8.3	32	
300--	22	5,885	-6.2	31	5,861	-7.5	49	30	5,646	-17.6		31	5,751	-14.9		31	5,734	-15.1		31	5,827	-11.2	27	31	5,800	-13.7	32	
250--	22	6,711	-10.9	31	6,679	-12.3	46	30	6,432	-22.6		31	6,545	-20.5		31	6,547	-20.9		31	6,629	-17.4		31	6,599	-19.7	32	
200--	22	7,601	-16.0	45	31	7,555	-18.3	45	31	7,389	-28.5		31	7,399	-27.1		31	7,403	-27.5		31	7,498	-24.3		31	7,455	-26.2	31
150--	22	8,593	-22.7	31	8,547	-25.0	42	30	8,224	-35.1		31	8,346	-34.3		31	8,349	-34.9		31	8,456	-31.8		31	8,405	-33.7		
100--	22	9,704	-31.3	31	9,647	-33.3	40	30	9,282	-41.9		31	9,406	-42.1		31	9,405	-43.2		30	9,528	-39.8		30	9,468	-41.7		
75--	22	10,967	-41.3	31	10,898	-43.8		30	10,497	-48.2		31	10,618	-49.1		31	10,610	-51.8		30	10,752	-48.2		30	10,681	-49.3		
50--	22	12,443	-53.2	31	12,354	-56.5		29	11,945	-54.0		30	12,066	-54.7		31	12,032	-58.3		31	12,195	-56.4		30	12,120	-55.6		
30--	17	13,289	-59.9	31	13,187	-63.1		28	12,795	-56.8		30	12,913	-57.5		31	12,868	-59.8		31	13,036	-59.3		30	12,964	-58.5		
15--	14	14,237	-66.6	29	14,131	-69.0		28	13,730	-58.8		30	13,878	-60.7		31	13,827	-61.4		28	13,994	-62.1		30	13,926	-61.2		
0--	17	15,325	-72.0	24	15,191	-74.5		28	14,901	-66.6		29	14,999	-63.1		31	14,955	-62.7		28	15,112	-62.1		28	15,047	-64.1		
100--	13	16,625	-75.0	15	16,489	-73.2		27	16,280	-60.9		29	16,368	-63.9		31	16,323	-64.0		25	16,461	-66.7		26	16,407	-64.8		
80--	12	17,928	-70.6	11	17,806	-68.6		24	17,662	-59.4		26	17,784	-61.7		26	17,808	-62.4		22	17,808	-66.0		24	17,770	-63.7		
60--	10	19,664																										

These average values for standard pressure surface were obtained by radiosonde observations (dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.



# RADIOSONDE DATA

Average monthly values

Table 20—Continued

OCTOBER 1952

Standard pressure surface (mb.)	SAN JUAN, P. R. (1012 MB.)				SANTA MARIA, CALIF. (1008 MB.)				S. STE. MARIE, MICH. ( 989 MB.)				SPOKANE, WASH. ( 936 MB.)				SWAN ISLAND, W. I. (1011 MB.)				TACUBAYA, MEXICO ( 775 MB.)				TAMPA, FLA. (1015 MB.)				
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	
SURFACE	31	19	25.9	84	31	71	13.2	90	31	221	3.7	81	31	722	12.1	47	31	10	26.2	87	31	2,306	14.3	48	31	9	21.2	84	
1,000---	31	127	25.8	82	31	141	12.8	89	31	129			31	157			31	109	26.1	84	31	84			31	140	21.2	81	
950----	31	590	23.5	80	31	585	17.9	63	31	553	3.2	71	31	595			31	568	23.3	83	31	541			31	591	19.6	79	
900-----	31	1,050	20.4	80	31	1,041	20.4	28	31	983	-1.9	68	31	1,052	15.3	36	31	1,032	20.4	81	31	1,019			31	1,050	17.3	75	
850-----	31	1,542	17.6	76	31	1,532	18.1	24	31	1,440	-1.6	64	31	1,533	12.4	36	31	1,524	17.5	79	31	1,509			31	1,536	14.6	74	
800-----	31	2,060	15.2	68	31	2,048	15.0	22	31	1,921	-3.5	58	31	2,039	9.8	34	31	2,041	14.7	65	31	2,032			31	2,047	12.3	68	
750-----	31	2,612	12.6	58	31	2,595	11.6		31	2,432	-5.9	51	31	2,577	6.3	35	31	2,592	11.9	76	31	2,585	12.5	47	31	2,594	9.6	63	
700-----	31	3,182	9.7	51	31	3,163	7.9		31	2,967	-8.2	44	31	3,133	2.8	30	31	3,161	8.8	72	31	3,154	8.6		31	3,157	6.6	55	
650-----	31	3,805	6.7	41	31	3,776	3.9		31	3,542	-11.0	45	31	3,735	-7.7	30	31	3,777	5.6	68	31	3,772	4.5		31	3,773	3.5	48	
600-----	31	4,449	3.1	38	30	4,416	-6		31	4,150	-14.7	42	31	4,363	-4.6	31	31	4,423	1.9	64	31	4,412	1.4		31	4,407	2	45	
550-----	31	5,160	-9	35	30	5,104	-5.3		31	4,805	-19.3	39	31	5,045	-9.0	30	31	5,121	-2.0	63	31	5,116	-2.0		31	5,105	-3.7	43	
500-----	31	5,903	-5.2	30	30	5,846	-10.9		31	5,506	-24.0	38	31	5,772	-14.2	32	31	5,873	-6.2	60	30	5,861	-5.9		31	5,847	-8.1	41	
450-----	31	6,736	-10.7		30	6,656	-17.2		31	6,271	-29.2	37	31	6,565	-19.8	33	31	6,695	-10.8	54	30	6,690	-11.2		31	6,674	-13.2	41	
400-----	31	7,617	-17.1		30	7,519	-23.8		31	7,101	-34.5		31	7,426	-26.4	35	31	7,588	-16.2	50	30	7,574	-17.0		31	7,545	-19.2	46	
350-----	31	8,604	-24.5		30	8,478	-31.3		31	8,021	-40.6		31	8,376	-33.6	35	31	8,579	-22.9	42	30	8,562	-23.9		31	8,525	-25.4	46	
300-----	31	9,707	-33.0		30	9,551	-39.4		31	9,056	-46.6		31	9,438	-41.8		30	9,691	-31.4	41	28	9,657	-32.2		31	9,624	-33.4	44	
250-----	31	10,963	-43.0		30	10,774	-48.4		31	10,252	-50.7		30	10,657	-50.6		30	10,954	-41.5		26	10,927	-41.8		31	10,877	-43.1		
200-----	31	12,430	-54.8		30	12,213	-56.8		29	11,716	-52.2		30	12,086	-57.1		29	12,425	-54.0		24	12,399	-53.8		31	12,341	-54.8		
175-----	30	13,273	-61.6		30	13,051	-60.3		29	12,579	-52.7		30	12,926	-58.7		29	13,268	-60.9		22	13,244	-60.1		29	13,181	-60.7		
150-----	30	14,212	-68.1		30	14,004	-63.3		29	13,570	-54.0		30	13,890	-60.2		28	14,208	-68.4		19	14,183	-66.9		27	14,128	-66.5		
125-----	29	15,290	-73.6		30	15,116	-66.0		29	14,736	-55.2		30	15,021	-62.1		24	15,280	-75.3		17	15,266	-73.4		25	15,218	-71.1		
100-----	24	16,579	-75.8		28	16,458	-67.7		29	16,155	-56.3		29	16,394	-62.5		19	16,553	-78.8		10	16,561	-71.9		21	16,533	-71.6		
80-----	22	17,878	-73.0		28	17,802	-66.5		27	17,574	-57.1		29	17,773	-61.4		17	17,841	-73.3		9	17,866	-71.1		16	17,855	-68.4		
60-----	18	19,598	-66.3		25	19,559	-62.2		22	19,386	-56.8		27	19,565	-61.3		15	19,555	-66.8		9	19,588	-60.6		13	19,595	-63.9		
40-----	15	20,713	-63.1		23	20,697	-59.0		19	20,547	-56.0		22	20,704	-60.9		15	20,665	-63.8		7	20,696	-63.7		13	20,718	-61.3		
30-----	14	22,090	-60.9		19	22,113	-55.7		16	21,964	-54.9		17	22,101	-60.2		12	22,044	-61.5		6	22,073	-60.7		8	22,100	-58.6		
20-----	12	23,892	-56.4		9	23,998	-51.3		8	23,846	-52.5		8	23,956	-55.4		10	23,856	-56.6										
20-----	6	26,459	-51.6														8	26,465	-50.7										

Standard pressure surface (mb.)	TATOOSH ISLAND, WASH. (1015 MB.)				VERACRUZ, MEXICO (1015 MB.)				WASHINGTON, D. C. (1009 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	29	31	11.1	91	29	12	25.6	68	31	88	11.2	66
1,000---	29	160	13.4	82	29	141	24.6	69	31	164	12.8	59
950----	29	599	14.1	69	29	592	21.0	73	31	596	12.3	49
900-----	29	1,049	12.4	57	29	1,056	17.6	71	31	1,046	9.8	48
850-----	29	1,526	10.7	48	29	1,543	14.8	70	31	1,519	7.7	44
800-----	29	2,029	8.3	46	29	2,054	11.8	72	31	2,017	5.9	44
750-----	29	2,562	5.3	41	29	2,601	9.1	63	31	2,553	3.2	40
700-----	29	3,120	2.1	37	28	3,163	6.6	54	31	3,099	-5	38
650-----	28	3,720	-1.3	34	27	3,780	4.5	48	31	3,693	-2.9	34
600-----	28	4,348	-5.3	33	25	4,418	1.7		31	4,319	-6.6	33
550-----	28	5,030	-9.6	35	24	5,119	-2.0		31	4,995	-10.7	31
500-----	28	5,755	-14.7	39	23	5,870	-6.1		31	5,720	-15.3	
450-----	27	6,547	-20.6	39	21	6,693	-10.9		31	6,513	-20.8	
400-----	26	7,405	-27.0		19	7,586	-16.4		31	7,367	-27.0	
350-----	26	8,352	-34.4		15	8,576	-23.6		31	8,316	-33.6	
300-----	26	9,409	-42.9		15	9,685	-32.0		31	9,379	-40.9	
250-----	25	10,614	-51.5		15	10,948	-41.9		31	10,598	-48.0	
200-----	24	12,038	-57.7		12	12,424	-53.6		30	12,040	-54.4	
175-----	22	12,875	-59.2		11	13,276	-59.9		30	12,889	-57.0	
150-----	21	13,833	-60.3		10	14,222	-67.9		28	13,845	-59.7	
125-----	20	14,970	-61.1		10	15,301	-74.2		27	14,986	-62.2	
100-----	18	16,354	-62.2		7	16,602	-77.6		26	16,356	-62.7	
80-----	18	17,736	-60.6						25	17,735	-60.6	
60-----	16	19,533	-59.7						25	19,533	-58.7	
40-----	14	20,673	-59.1						24	20,679	-57.3	
30-----	13	22,087	-57.3						21	22,096	-55.6	
20-----	6	23,960	-54.0						20	23,936	-53.1	
20-----									8	26,538	-49.2	

Note: All observations scheduled at 0300, G.C.T. except at Mazatlan, Merida and Veracruz, where they are taken near 0200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and

expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C. have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.



# PILOT BALLOON DATA

Average monthly resultant winds

OCTOBER 1952

Table 21

Altitude (meters) m a.s.l.	Abilene, Tex. (534 m.)			Albuquerque N. Mex. (1,627 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N.Y. (220 m.)			Burlington Vt. (100 m.)			Charleston, S.C. (16 m.)			Cincinnati Ohio (273 m.)			* El Paso, Tex. (1,198 m.)			Ely, Nev. (1,910 m.)					
	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed			
Surface-----	31	204	1.3	31	201	1.6	31	303	0.9	31	300	4.2	31	312	2.4	31	63	4.6	30	247	6.7	29	238	2.7	30	66	1.5	30	245	2.7	31	198	1.4	31	251	1.1			
500-----	31	180	1.5	31	186	2.2	31	292	2.7	31	298	5.4	31	307	2.2	31	52	5.0	30	250	7.1	29	238	5.4	30	36	2.0	30	248	3.7	31	203	1.1	31	252	1.0			
1,000-----	31	228	3.7	31	221	2.1	30	295	5.1	29	303	9.5	31	270	7.2	29	349	3.7	15	280	11.9	16	262	12.2	27	273	3.2	24	275	8.0	31	212	9.1	31	252	1.0			
1,500-----	30	256	3.8	31	258	2.1	30	289	7.5	29	307	11.0	31	274	1.9	27	8	3.6	14	286	15.0	11	262	13.5	24	276	4.1	23	288	9.6	31	260	1.4	31	230	1.0			
2,000-----	29	279	3.7	31	289	4.3	30	288	9.0	27	304	12.6	30	279	3.4	27	3	3.6	13	293	16.7	13	262	13.5	24	275	4.1	23	288	9.6	31	250	1.4	31	230	1.0			
2,500-----	29	311	4.5	31	306	6.6	29	297	10.9	26	307	15.3	29	286	5.3	24	349	5.3	13	293	16.7	13	262	13.5	24	275	4.1	23	288	9.6	31	250	1.4	31	230	1.0			
3,000-----	29	325	6.5	31	312	8.5	28	302	11.9	24	310	15.9	28	287	6.2	18	340	9.1	13	293	16.7	13	262	13.5	24	275	4.1	23	288	9.6	31	250	1.4	31	230	1.0			
3,500-----	28	328	8.1	31	311	9.4	25	306	12.9	22	315	19.0	27	287	6.9	16	326	12.2	13	293	16.7	13	262	13.5	24	275	4.1	23	288	9.6	31	250	1.4	31	230	1.0			
4,000-----	24	310	10.9	29	317	12.1	16	301	12.1	15	322	18.9	19	291	11.0	13	307	12.8	13	293	16.7	13	262	13.5	24	275	4.1	23	288	9.6	31	250	1.4	31	230	1.0			
4,500-----	18	325	13.5	26	304	15.9	10	325	16.8	10	325	16.8	10	325	16.8	10	325	16.8	10	325	16.8	10	325	16.8	10	325	16.8	10	325	16.8	10	325	16.8	10	325	16.8	10	325	16.8
5,000-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
5,500-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
6,000-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
6,500-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
7,000-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
7,500-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
8,000-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
8,500-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
9,000-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
9,500-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
10,000-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
10,500-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
11,000-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
11,500-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
12,000-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
12,500-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
13,000-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
13,500-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
14,000-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
14,500-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
15,000-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
15,500-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
16,000-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4
16,500-----	10	327	14.4	12	308	15.4	12	308	15.4	12	308	15.4	12	308	15.4	12	3																						



# RAWIN DATA

Average monthly resultant winds

Table 22

OCTOBER 1959

	Albuquerque, N. Mex. (1 636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Burrowood, La. (3 m.)			Caribou, Me. (191 m.)			Charleston, S.C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1 473 m.)			Greensboro, N.C. (27 m.)			Hattiesburg, Miss. (1 m.)			Int. Falls, Minn. (358 m.)				
Altitude (meters)																																						
m s l																																						
	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed					
Surface	31	117	3.4	31	138	3.2	31	334	1.0	31	73	1.9	31	35	3.6	31	249	2.2	31	38	1.4	31	112	0.3	31	45	1.1	30	331	0.2	31	341	2.6	31	258	1.8		
500	31	154	4.4	31	193	1.0	30	70	3.5	31	271	7.3	31	323	1.6	30	309	2.5	29	119	2.7	31	99	3.4	31	102	6.5	28	291	3.4	31	356	1.6					
1,000	31	358	1.1	31	305	1.3	30	98	2.7	31	269	8.4	31	318	2.3	30	313	1.8	29	148	1.9	31	328	1.8	31	110	2.5	31	103	7.4	28	308	7.4	31	82	1.0		
1,500	31	333	2.6	31	322	7.3	140	1.9	30	263	8.6	31	283	3.5	30	140	1.4	29	268	9.3	31	312	3.9	31	272	7.7	31	104	7.2	28	310	9.0	31	134	2.3			
2,000	31	319	3.6	31	168	1.0	30	174	2.5	29	260	10.1	31	297	4.3	31	191	1.4	30	294	3.5	31	311	6.8	31	309	2.9	31	100	6.8	29	309	10.8	31	150	3.2		
2,500	31	323	3.5	31	185	2.2	30	195	3.3	29	264	12.0	31	294	5.1	31	192	2.6	30	303	4.9	31	309	8.7	31	317	3.8	31	100	6.4	30	112	11.6	31	157	2.6		
3,000	31	323	4.6	31	188	2.8	30	208	4.5	29	263	14.2	31	291	6.2	31	182	3.3	31	304	5.2	31	311	11.0	31	316	4.6	31	100	5.8	28	312	12.9	31	175	2.5		
4,000	31	321	5.9	31	203	3.7	30	219	5.8	27	262	17.6	28	283	7.8	31	190	4.6	31	314	6.3	30	309	13.9	31	337	6.2	31	99	5.2	28	316	15.1	31	188	3.3		
5,000	31	319	6.9	31	210	4.5	30	216	7.6	21	264	17.5	28	286	9.6	31	204	5.2	31	316	7.1	27	306	11.4	31	339	6.5	31	100	6.4	24	314	19.6	31	199	4.8		
6,000	29	312	7.3	31	215	4.8	30	228	9.2	18	255	22.0	26	272	8.3	31	215	6.2	31	339	7.8	25	308	16.4	31	376	8.6	31	106	7.6	24	316	18.1	31	208	6.2		
8,000	29	300	7.1	31	232	6.8	30	232	13.6	14	239	29.2	25	265	11.5	30	229	7.9	29	315	8.9	19	309	17.4	31	310	13.3	31	111	9.5	22	318	18.0	31	231	9.2		
10,000	28	281	10.4	28	239	9.9	30	237	16.4				23	243	17.5	25	249	11.4	27	310	11.5	14	305	21.2	28	297	18.9	30	106	6.5	17	315	21.1	30	242	12.8		
12,000	24	268	12.9	25	248	10.6	30	233	19.9				17	251	20.7	21	251	11.5	26	300	12.9	12	303	21.7	24	287	18.8	30	52	4.2	12	306	21.5	28	248	15.1		
14,000	21	271	15.7	21	253	9.8	28	246	17.9				14	250	19.1	15	251	9.1	25	291	13.6				21	286	17.3	27	77	5.3			28	248	10.0			
16,000	18	275	13.0	20	285	8.2	13	215	8.2				11	253	16.1				20	289	11.0				18	287	12.9	23	85	4.8			25	263	4.2			
18,000	14	273	10.2	17	287	5.1													19	283	8.8				11	272	7.1	19	96	7.0			27	360	2.1			
20,000				15	343	3.9														16	265	6.1				13	87	10.1						23	67	2.4		
22,000				12	335	2.8														14	235	3.0						10	87	14.3						18	69	2.0

Sault Ste. Marie, Mich.	Spokane Wash.	Swan Is., W.I.	Tatoosh Is., Wash.	Washington, D.C.
(221 m.)	(726 m.)	(10 m.)	(33 m.)	(68 m.)

	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Swan Is., W.I. (10 m.)		
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## SOLAR RADIATION DATA

Table 30 -Solar radiation intensities, tabulated in langbeys per minute.

Date	Sun's zenith distance								Vapor pressure, E.S.T.		
	A. M.				0.0°	P. M.				7.30 a. m.	1.30 p. m.
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°		
TABLE MOUNTAIN, CALIF.											
Air mass											
	3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76		
Oct. 1-----				1.34						Mb. Mb.	
2-----				1.38							
3-----	1.14	1.24	1.35	1.49							
4-----	1.17	1.25	1.36	1.50							
5-----				1.51							
6-----	1.18	1.26	1.37	1.49							
7-----	1.17	1.27	1.37	1.50							
8-----				1.44							
9-----	1.17	1.26	1.36	1.49							
10-----	1.19	1.29	1.38	1.52							
11-----	1.22	1.30	1.40	1.54							
12-----				1.49							
13-----				1.43							
Averages	1.18	1.27	1.37	1.47							
Departures	+0.01	+0.01	+0.01	-0.01							
LINCOLN, NEBR.											
Air mass											
	4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
Oct. 1-----				1.30		1.12	0.88	0.69		Mb. Mb.	
2-----	0.70	0.81	0.92	1.12	1.30						
3-----	.73	.86	1.03	1.22	1.38						
4-----	.68	.79	.92	1.07	1.20						
5-----	.54	.70	.81								
6-----			1.05	1.22	1.44						
7-----	.83	.96	1.09	1.24	1.45						
8-----				1.18	1.36	1.14	.94	.79	0.68		
9-----			.83	1.01	1.17	.94	.69	.54	.45		
10-----	.56	.67	.84	1.01	1.24	1.03	.83	.77	.69		
11-----	.62	.73	.88	1.01	1.24	.99	.79	.74	.54		
12-----	.75	.90	1.06	1.25	1.38						
13-----	.92	1.02	1.13	1.29	1.41	1.27	1.12	1.01	.92		
14-----	.74	.87	.99	1.14	1.25						
15-----	.70	.83	.96	1.11	1.23	1.08	.86	.73	.62		
16-----	.62	.75	.86	1.07							
Averages	.70	.82	.96	1.14	1.31	1.08	.88	.74	.65		
Departures	-.08	-.08	-.09	-0.10	-0.11	-0.14	-.16	-.14			
MADISON, WIS.											
Air mass											
	4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		
Oct. 1-----				1.35						Mb. Mb.	
2-----	0.84	0.95	1.07	1.25							
3-----	.61	.73	.92	1.16							
4-----	.77	.92	1.07	1.21							
5-----			.98	1.11							
6-----	.83	.98	1.07	1.21							
7-----	.65	.75	.99	1.21							
8-----			.81	.94							
9-----		.87	1.01	1.25							
10-----	.71	.87	1.01	1.15							
11-----	.96	1.07	1.18	1.31							
12-----	.77	.87	1.01	1.14							
13-----			1.22								
14-----	.79	.94	1.13								
15-----	.52	.66	.84								
16-----	.80	.91	1.11								
17-----	.91	1.07	1.21								
Averages	.72	.85	.98	1.16							
Departures	.00	.01	.02	+0.01							
* From page 1-4											

Date	Sun's zenith distance								Vapor pressure, E.S.T.		
	A. M.				0.0°	P. M.				7.30 a. m.	1.30 p. m.
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°		
ALBUQUERQUE, N. M.											
Air mass											
	4.08	3.26	2.44	1.63	*0.815	1.63	2.44	3.26	4.08		
Oct. 1-9					Recorder not in operation.					Mb. Mb.	
10-----	1.03	1.13	1.21	1.33		1.30	1.08	0.96	0.81		
11-----	.88	1.03	1.14	1.31		1.32	1.11	.96	.77		
12-----	.95	1.08	1.19	1.37		1.39	1.21	1.11	.98		
13-----	1.02	1.16	1.25	1.40		1.43	1.25	1.10	.96		
14-----	.97	1.10	1.25	1.41		1.44	1.25	1.18	1.00		
15-----	.78	.90	1.01	1.31		1.40	1.22	1.08	.94		
16-----	.98	1.13	1.26	1.42		1.47	1.29	1.20	1.06		
17-----					CLOUDY						
18-----	.87	1.04	1.17	1.38		1.46	1.28	1.20	1.08		
19-----	.87	1.02	1.18	1.35							
20-----					CLOUDY						
21-----					CLOUDY						
22-----		1.11	1.25	1.44		1.43		1.05	.83		
23-----	.88	1.04	1.16	1.33		1.31	1.18	1.08	.82		
24-----	.78	.93	1.11	1.29		1.36	1.18	1.07	.94		
25-----		.96	1.11	1.28		1.33					
26-----				1.41		1.42					
27-----	1.01	1.12	1.27	1.42		1.30	1.19	1.05	.94		
28-----	.82	.94	1.11					.98	.78		
29-----	.73		1.08			1.31	1.16	1.00	.86		
30-----						1.33	1.20	1.02	.91		
31-----	1.01	1.11	1.26	1.42	CLOUDY						
Averages	.91	1.05	1.18	1.37		1.38	1.21	1.08	.91		
Departures	-.03	.00	.00	+0.06		+0.04	+0.01	-.01	-.05		
BOSTON, MASS.											
Air mass											
	4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96		
Oct. 1-----				1.16		1.22	1.05	0.91	0.79	Mb. Mb.	
2-----				1.41		1.29	1.09	.91	.79		
3-----	0.76	0.85	1.00	1.16		1.22	.98	.79	.69		
4-----	.77	.84									
5-----	.76	.83	1.03	1.18		1.11	.97	.84	.63		
6-----			.93			.87	.44	.26			
Averages	.76	.84	1.02	1.17		1.14	.91	.74	.73		
Departures	+.02	+0.04	+0.11	+0.10		-.01	-.01	-.05	+0.03		
RATIO BOSTON/BLUE HILL ON COMPARABLE DATES											
	0.94	0.90	0.97	0.97	----	0.98	0.97	0.93	0.92		
BLUE HILL, MASS.											
Air mass											
	4.56	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
Oct. 1-----										Mb. Mb.	
4-----	0.99	1.09	1.19	1.35		1.32	1.18	1.02	0.92		
8-----	.83	.94	1.04	1.18							
11-----	.92	1.02	1.11	1.20			1.09	.93	.80		
17-----			1.14	1.24		1.23	1.08	.95	.82		
18-----	.76	.86	.99	1.13							
21-----	1.02	1.10	1.21	1.37		1.33	1.11	1.00	.92		
22-----	.83	.95	1.06	1.24		1.23	1.01	.87	.76		
23-----	.81	.93	1.03	1.16							
24-----	.80	.90	1.03	1.22							
25-----	1.00	1.08	1.20	1.33							
26-----	1.05	1.15	1.27	1.39							
Averages	.90	1.00	1.12	1.26		1.28	1.09	.95	.84		
Departures	+0.05	+0.05	+0.04	+0.04		+0.08	+0.07	+0.06	+0.07		

An explanation of Tables 30 and 31 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given

in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.



# SOLAR RADIATION DATA

OCTOBER 1952

**Table 31a** Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during the month

	Avg														Avg											Avg
ate-----	1	2	3	4	5	6	7		8	9	10	11	12	13	14		15	16	17	18	19	20	21			
angleys-----	79	45	21	66	70	78	54	59	71	85	(71)	79	---	78	(69)	(75)	(70)	77	61	59	69	(81)	(62)	(69)		
ate-----	22	23	24	25	26	27	28		29	30	31	1	2	3	4											
angleys-----	57	57	(58)	--	67	61	63	(61)	57	47	54	53	53	35	57	51										

**Table 31b** Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing east at Blue Hill, Mass. during the month

								Avg									Avg										Avg
Date-----	1	2	3	4	5	6	7		8	9	10	11	12	13	14		15	16	17	18	19	20	21				
Langleys-----	183	39	19	312	265	262	66	164	315	196	135	171	307	251	239	231	226	151	211	241	146	205	265	206			
Date-----	22	23	24	25	26	27	28		29	30	31	1	2	3	4												
Langleys-----	234	232	237	246	255	151	108	209	137	56	183	148	171	69	189	136											

**Table 31c** Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

	Avg															Avg															Avg													
Date-----	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21																							
Langleys-----	352	28	6	503	--	330	96	219	(433)	225	299	168	456	359	403	(435)	286	329	480	(335)	284	327	509	(364)																				
Date-----	22	23	24	25	26	27	28	29	30	31	1	2	3	4																														
Langleys-----	487	438	(442)	(395)	525	319	225	(404)	192	83	393	399	351	60	522	286																												

**Table 31d** Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing west at Blue Hill, Mass. during the month

								Avg									Avg										Avg
Date-----	1	2	3	4	5	6	7		8	9	10	11	12	13	14		15	16	17	18	19	20	21				
Langleys-----	217	11	24	292	233	199	146	165	250	134	264	99	284	229	281	220	117	233	244	125	102	194	233	178			
Date-----	22	23	24	25	26	27	28		29	30	31	1	2	3	4												
Langleys-----	222	185	175	169	217	131	103	172	76	91	142	193	128	31	224	127											

**Table 31e** Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

								Avg								Avg											Avg
Date-----	1	2	3	4	5	6	7		8	9	10	11	12	13	14		15	16	17	18	19	20	21				
Langleys-----	129	50	18	27	66	101	78	67	68	133	103	127	48	118	65	95	110	110	31	76	74	125	25			79	
Date-----	22	23	24	25	26	27	28		29	30	31	1	2	3	4												
Langleys-----	33	57	52	79	32	85	106	63	98	93	87	82	80	59	63	80											

Note: Langley is the unit used to denote one gram calorie per square centimeter



# SOLAR RADIATION DATA

Table 33 - Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langley's

	Albuquerque, N. Mex.	Alachua, Fla.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Dismark, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Doston, Mass.	Brownsville, Tex.	Canton Island, Pacific Area	Caribou, Me.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Columbus, Ohio	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	E. Wareham, Mass.	El Paso, Tex.	Ely, Nevada	Fairbanks, Alaska	Ft. Worth, Tex.	Glaxco, Mont.	Gold Junction, Colo.	Grand Lake, Colo.	Great Falls, Mont.	Greensboro, N. C.	Hatteras, N. C.	Indianapolis, Ind.	Ithaca, N. Y.	Lake Charles, La.		
1952	543	521	521	54	43	322	346	507	382	487	(668)	441	510	426	420	410	445	527	181	388	561	533	115	509	288	458	459	454	464	515	512	443	508		
October 1	548	521	521	127	43	320	346	507	382	487	(668)	441	510	426	420	410	445	527	181	388	561	533	115	509	288	458	459	454	464	515	512	443	508		
October 2	536	520	520	84	40	409	437	435	371	586	(697)	110	550	434	492	421	445	527	381	40	546	520	139	568	491	458	459	454	464	515	512	443	508		
October 3	526	517	524	22	171	431	446	455	434	572	---	142	512	431	424	---	421	515	360	426	547	512	(71)	543	494	458	459	454	464	515	512	443	508		
October 4	536	520	520	84	40	409	437	435	371	586	(697)	110	550	434	492	---	421	515	360	426	547	512	(71)	543	494	458	459	454	464	515	512	443	508		
October 5	536	520	520	84	40	409	437	435	371	586	(697)	110	550	434	492	---	421	515	360	426	547	512	(71)	543	494	458	459	454	464	515	512	443	508		
October 6	540	437	410	110	295	448	299	596	578	35	324	126	528	94	386	436	436	436	436	436	436	436	436	436	436	436	436	436	436	436	436	436	436		
October 7	536	513	482	40	111	299	120	408	141	138	682	83	222	426	509	458	341	552	211	189	558	463	(132)	608	455	521	495	449	277	232	445	188	492		
Averages	538	518	501	70	113	369	236	455	246	504	(656)	180	437	310	433	262	411	503	250	277	553	508	(115)	488	412	505	452	411	475	474	340	181	506		
Departures	+27	+17	+3	---	---	+47	-70	+97	-26	-7	---	-96	+44	-1	+34	---	+1	---	0	-18	+14	---	---	---	---	+39	+68	+11	+77	+55	-29	+99	-15	-96	+64
October 8	532	160	91	(39)	79	386	375	439	366	634	(691)	264	58	470	499	409	398	524	296	292	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
October 9	515	509	69	80	128	359	244	337	278	599	(657)	291	123	426	485	340	407	525	321	225	554	548	170	595	491	458	459	454	464	515	512	443	508		
October 10	521	427	71	36	86	343	283	398	312	593	(671)	325	298	319	484	68	392	506	357	269	554	548	170	595	491	458	459	454	464	515	512	443	508		
October 11	510	503	292	86	46	340	200	398	248	588	(705)	416	258	411	440	240	387	465	307	533	484	548	170	595	491	458	459	454	464	515	512	443	508		
October 12	519	470	345	31	36	311	382	397	370	567	---	379	474	418	427	345	394	483	225	173	522	484	548	170	595	491	458	459	454	464	515	512	443	508	
October 13	516	506	487	36	---	286	297	479	308	564	(694)	228	491	341	381	274	386	470	301	534	478	121	534	302	503	383	393	444	446	302	295	439	479		
October 14	512	484	58	66	375	315	353	311	561	722	160	264	430	323	76	130	377	360	196	302	532	482	(119)	(512)	326	462	368	398	445	327	142	288	479		
Averages	518	407	263	(52)	73	343	300	400	313	586	(690)	295	305	387	399	258	392	476	279	280	538	488	88	(550)	344	501	431	(318)	290	244	336	337	515		
Departures	+30	-27	-156	---	---	+54	-4	+75	+71	+72	---	+25	-32	+79	+29	---	+12	---	+62	+13	+20	---	---	---	+107	+59	+55	+46	-94	-79	-12	+62	+91		
October 15	511	343	314	48	99	286	242	401	284	473	---	41	268	54	457	77	387	517	217	234	513	(478)	99	561	200	473	439	236	170	125	418	382	565		
October 16	511	237	425	37	101	133	274	458	294	543	(606)	191	443	435	458	397	180	438	310	283	522	410	102	553	186	463	358	209	310	119	409	368	512		
October 17	476	492	---	46	121	298	347	388	371	534	(621)	246	229	182	432	317	304	(395)	74	325	516	(430)	81	(521)	401	458	448	354	254	209	256	258	529		
October 18	495	389	---	17	154	347	269	369	212	513	(701)	107	225	234	440	390	372	470	256	280	503	(459)	38	519	382	320	332	342	385	313	387	104	497		
October 19	472	74	---	---	148	357	---	369	212	513	(701)	107	225	234	440	390	372	470	256	280	503	(459)	38	519	382	320	332	342	385	313	387	104	497		
October 20	395	479	---	8	39	357	267	334	269	545	(699)	162	457	230	458	410	345	369	309	284	494	(441)	(43)	518	373	411	176	338	460	425	409	160	492		
October 21	445	496	506	42	63	325	351	362	365	516	(606)	154	127	400	446	372	356	165	290	340	483	(445)	38	274	362	405	329	345	465	237	392	373	486		
Averages	472	359	---	33	104	300	292	380	297	521	(647)	168	313	256	450	319	322	(404)	247	294	506	(445)	(70)	(488)	325	425	360	313	349	262	347	255	497		
Departures	+24	-40	---	---	---	+33	+5	+80	+39	+39	---	-53	+16	-34	+97	---	-30	---	+21	+25	+25	---	---	---	+86	+72	+42	+4	+69	+6	+32	-5	+104		
October 22	437	196	371	44	166	336	---	355	338	496	(637)	180	489	385	434	382	321	404	268	321	487	433	39	449	417	429	413	345	410	490	383	351	465		
October 23	436	296	375	33	139	---	244	336	---	496	(650)	105	---	369	372	328	184	421	283	287	477	421	---	448	330	428	417	308	488	477	343	316	475		
October 24	432	461	417	24	74	304	283	330	227	479	---	103	444	332	395	330	341	418	265	305	484	423	---	---	486	344	373	378	354	389	450	357	339	434	
October 25	446	469	414	15	78	300	271	333	266	521	(586)	102	404	359	373	353	334	422	295	258	468	---	---	---	477	348	415	404	344	281	406	297	174	457	
October 26	432	443	362	(38)	30	301	321	330	306	529	(631)	338	317	246	360	240	332	407	160	325	467	424	---	---	477	348	415	404	344	281	406	297	174	457	
October 27	448	399	411	25	30	318	227	348	241	545	(673)	186	435	(673)	186	435	275	336	402	160	325	467	424	---	---	477	348	415	404	344	281	406	297	174	457
October 28	421	400	433	6	111	308	194	329	179	515	(679)	16	361	163	428	167	318	436	91	223	427	344	46	509	399	399	395	326	264	406	152	173	438		
Averages	449	384	398	(26)	82	311	257	337	276	512	(643)	147	409	300	392	299	311	416	229	283	468	409	38	479	351	408	399	395	326	264	406	152	173	438	
Departures	+43	+2	+77	---	---	+64	---	+80	+37	+64	---	-29	+109	+59	+104	---	-1	---	+56	+66	+20	---	---	---	---	+115	+123	+48	+76	+89	+31	+410	+46	+83	+85
October 29	415	480	379	10	70	304	168	226	189	434	(698)	102	399	109	408	224	273	403	236	227	459	(380)	38	486	259	346	313	189	400	450	349	163	410		
October 30	422	455	405	11	53	159	124	304	115	476	(689)	232	417	307	324	335	369	207	260	445	(385)	26	418	309	456	325	229	335	425	325	334	347	286	410	
October 31	375	451	381	10	119	282	266	196	254	466	(707)	80	412	232	316	257	286	394	172	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
November 1	432	453	383	9	52	171	265	311	246	551	---	127	410	271	295	226	318	371	219	230	424	352	39	420											



**Table 33.**—Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleya. — Continued

**Table 33.**—Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleya. — Continued

Note.--Langley is the unit used to denote cal. per square centimeter. Values in parentheses are interpolated.

WVBC Asheville	N.C.	Date	Page
		2/2/53	2200

WVBC Asheville	N.C.	Date	Page
		2/2/53	2200



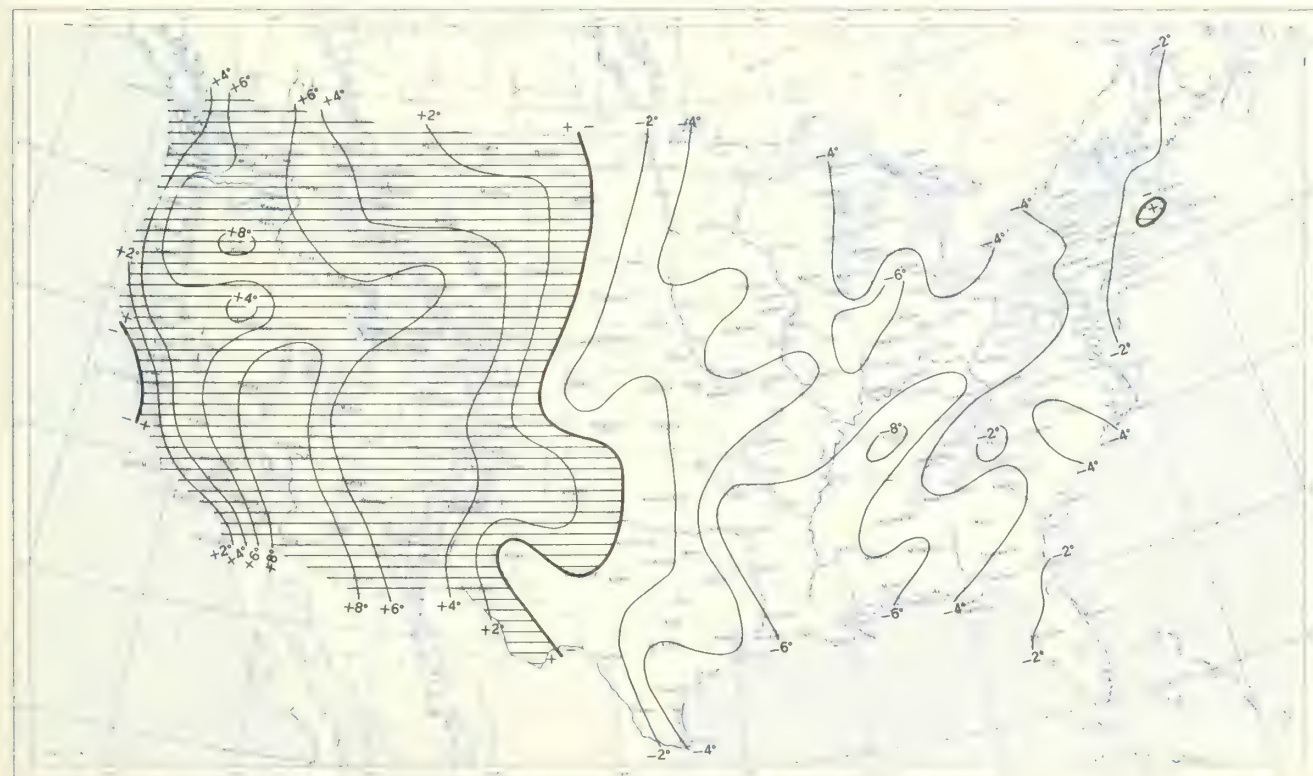




Chart I. A. Average Temperature ( $^{\circ}\text{F.}$ ) at Surface, October 1952.



B. Departure of Average Temperature from Normal ( $^{\circ}\text{F.}$ ), October 1952.



A. Based on reports from 800 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Normal average monthly temperatures are computed for Weather Bureau stations having at least 10 years of record.



Chart II. Total Precipitation (Inches), October 1952.



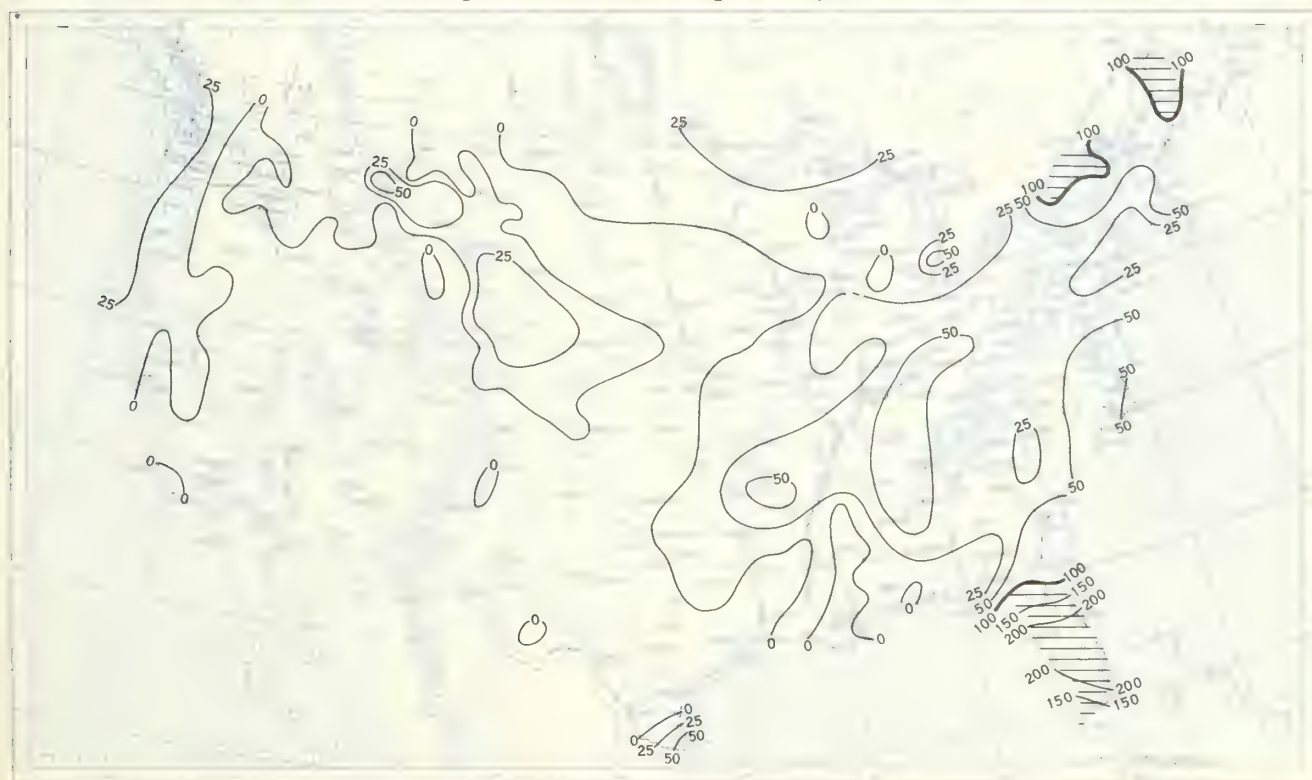
Based on daily precipitation records at 800 Weather Bureau and cooperative stations.



Chart III. A. Departure of Precipitation from Normal (Inches), October 1952.



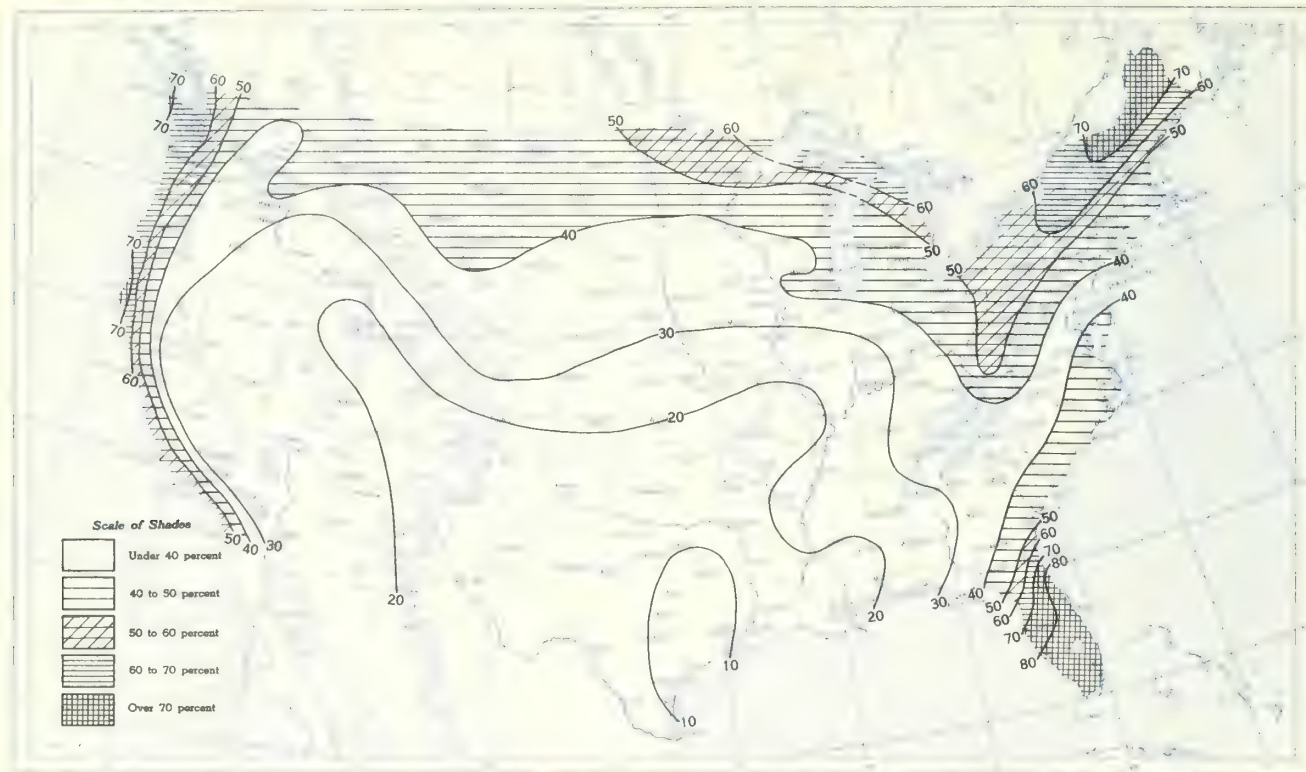
B. Percentage of Normal Precipitation, October 1952.



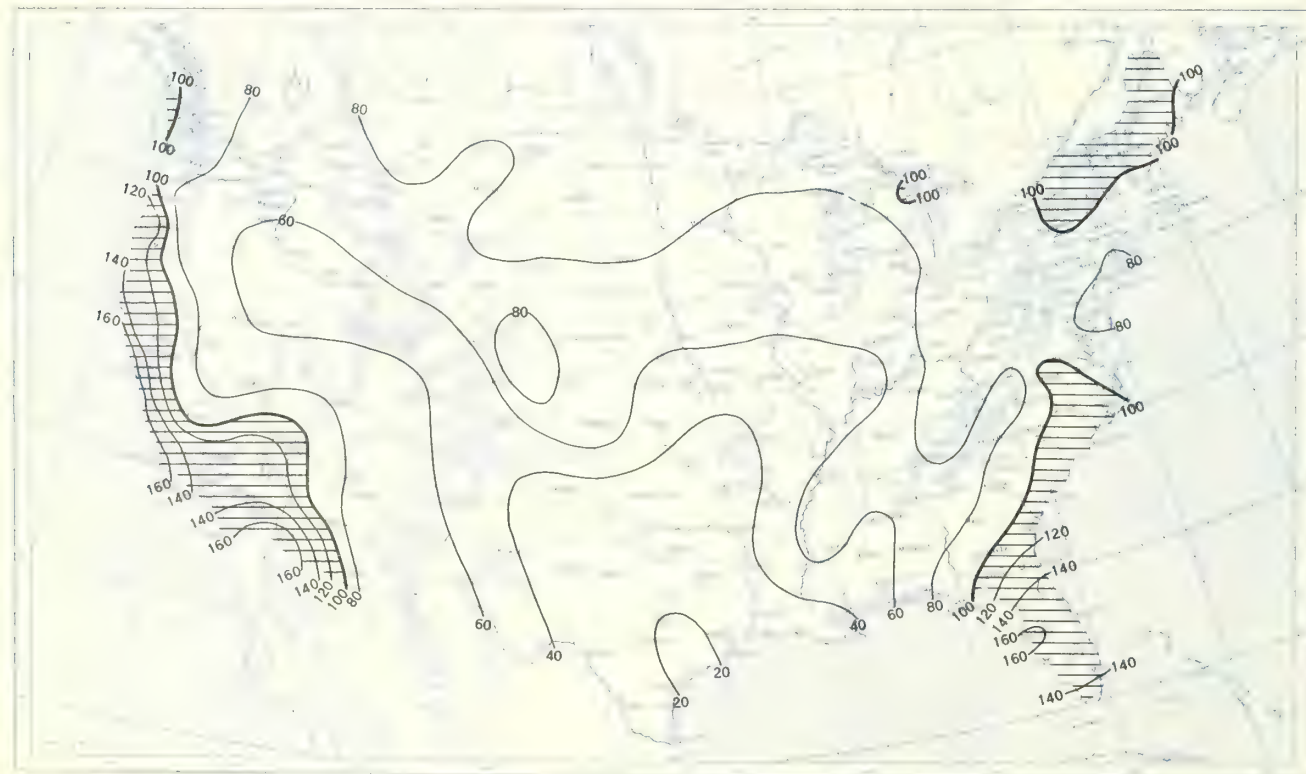
Normal monthly precipitation amounts are computed for stations having at least 10 years of record.



Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, October 1952.



B. Percentage of Normal Sky Cover Between Sunrise and Sunset, October 1952.



A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.



Chart VII. A. Percentage of Possible Sunshine, October 1952.



B. Percentage of Normal Sunshine, October 1952.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.



Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, October 1952. Inset: Percentage of Normal Average Daily Solar Radiation, October 1952.

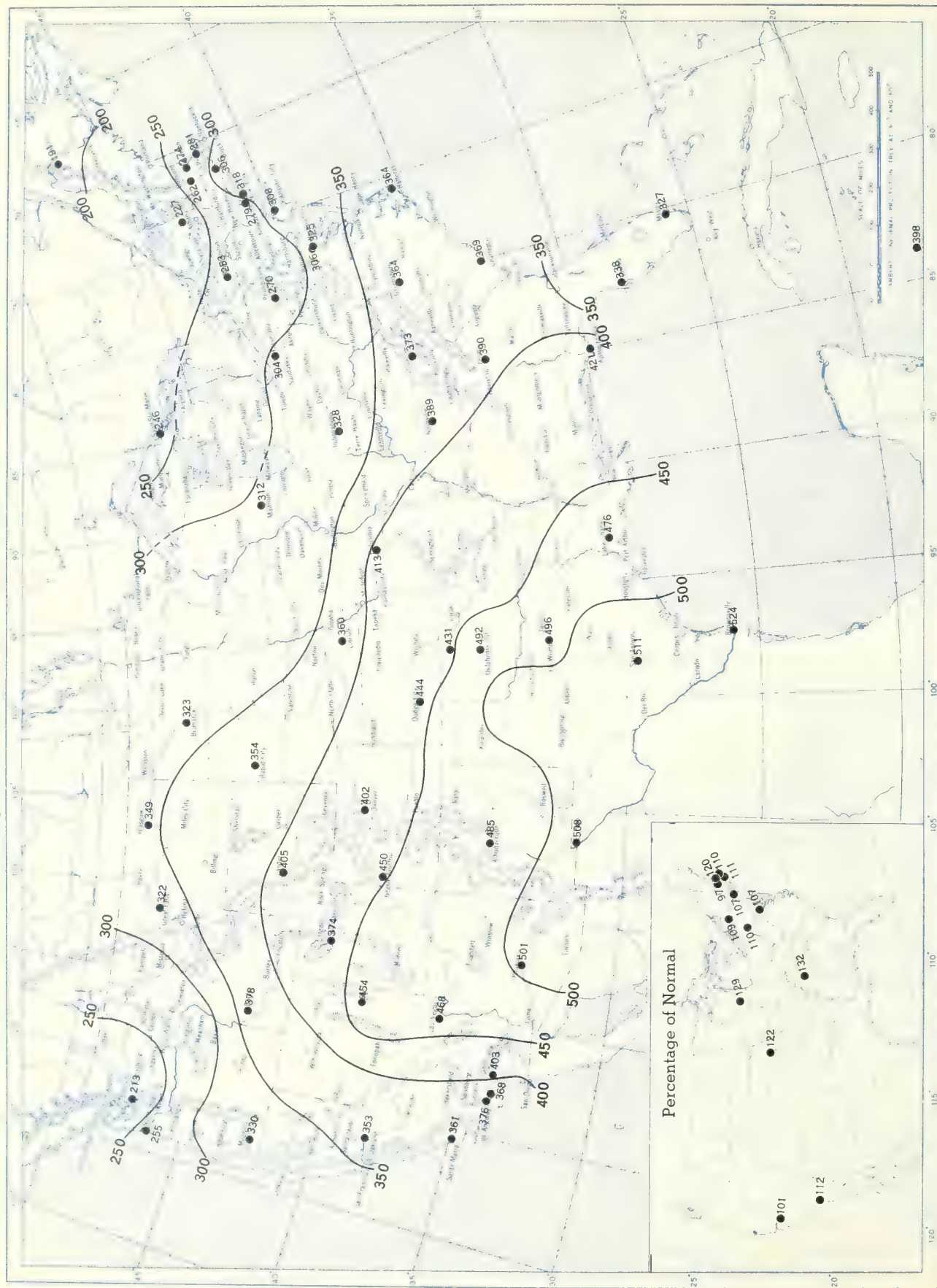


Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langley's (1 langley = 1 gm. cal. cm.<sup>-2</sup>). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown. Normalized



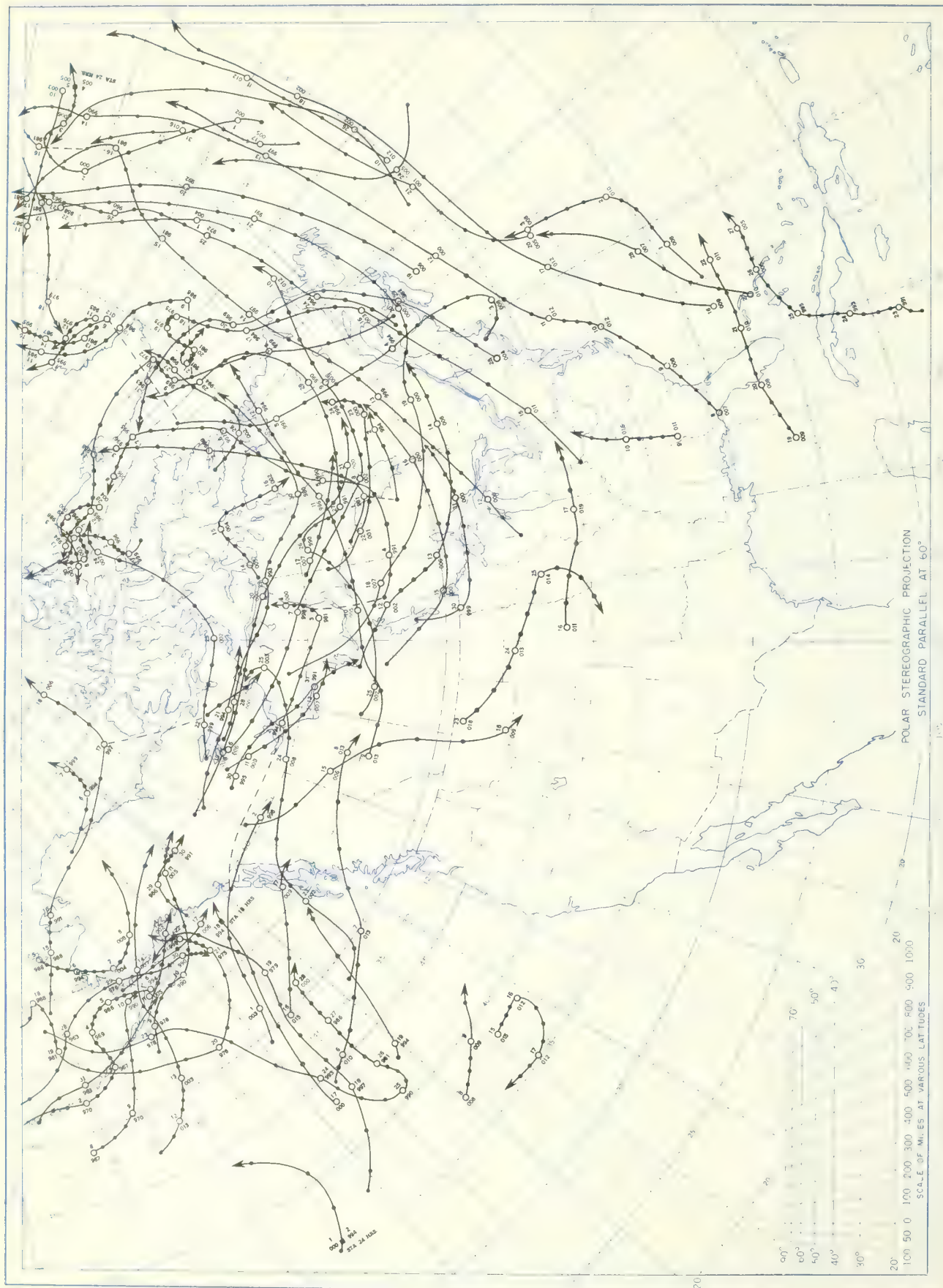
Chart IX. Tracks of Centers of Anticyclones at Sea Level, October 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



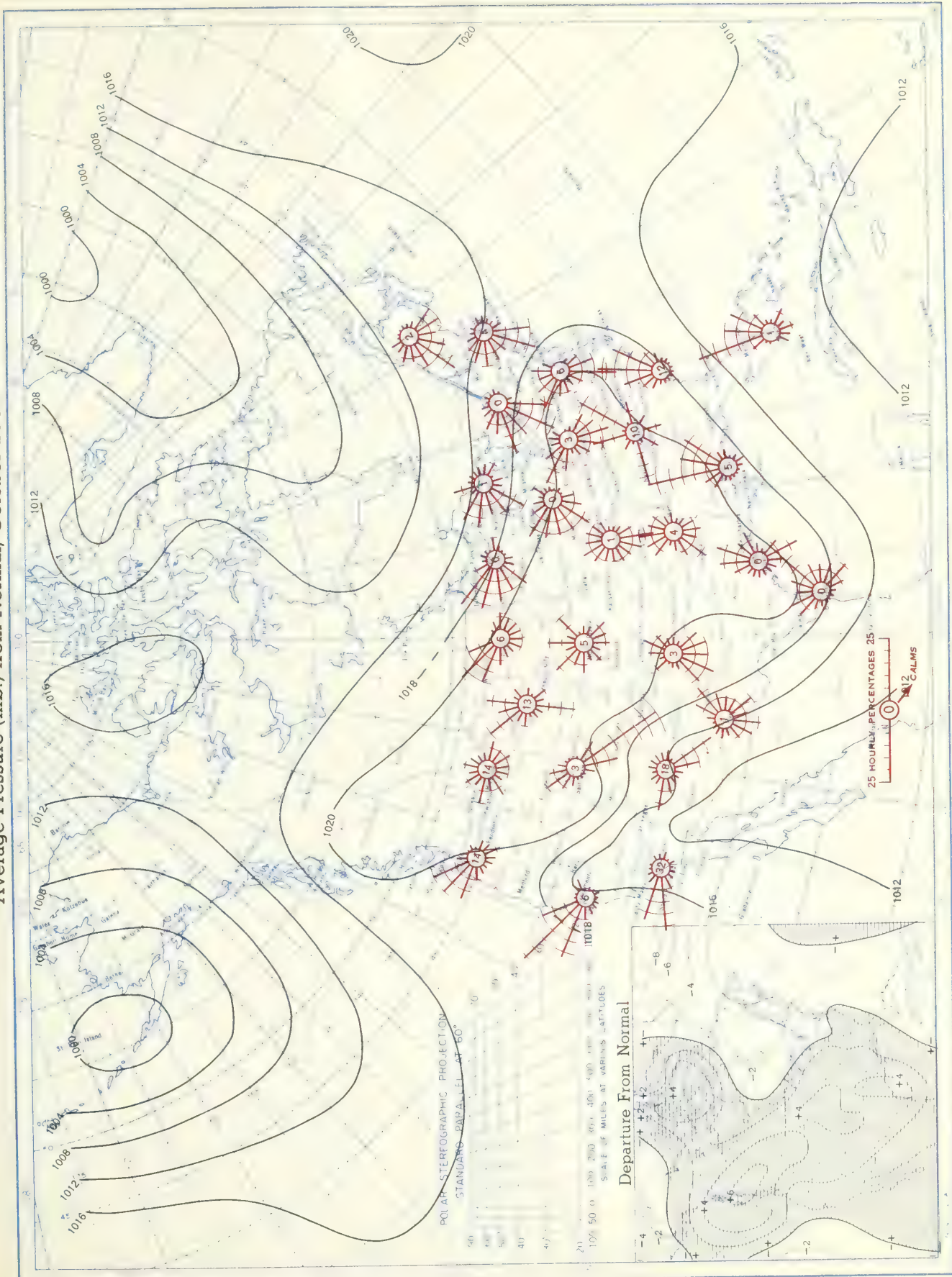
Chart X. Tracks of Centers of Cyclones at Sea Level, October 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. See Chart IX for explanation of symbols.



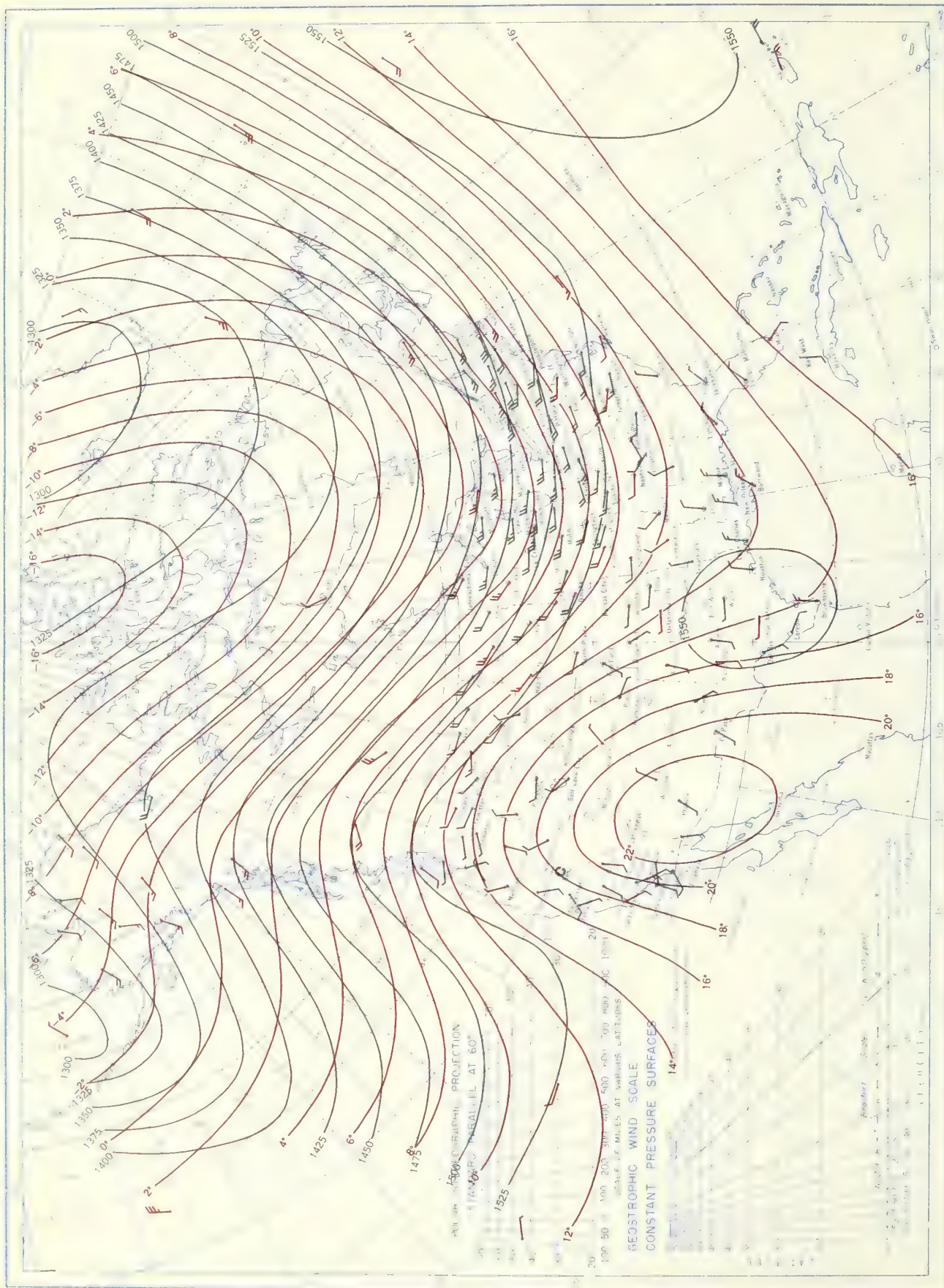
Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, October 1952. Inset: Departure of Average Pressure (mb.) from Normal, October 1952.



Average sea level pressures are obtained from the averages of the 7:30 a. m. and 7:30 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.



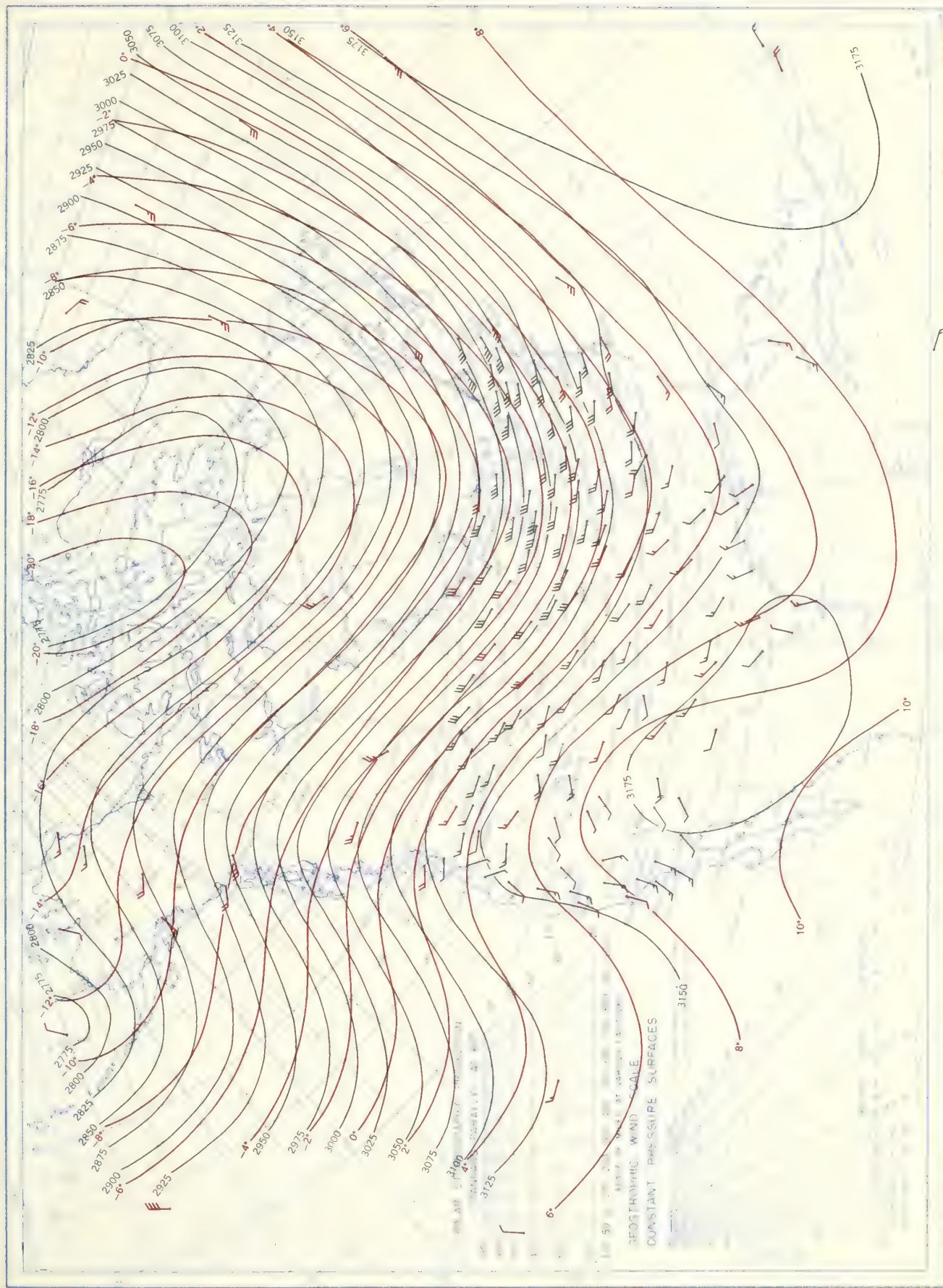
Chart XII. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 850-mb. Pressure Surface, Average Temperature in °C. at 850 mb., and Resultant Winds at 1500 Meters (m.s.l.), October 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; these shown in red are based on radiosonde taken at 0300 G. M. T.



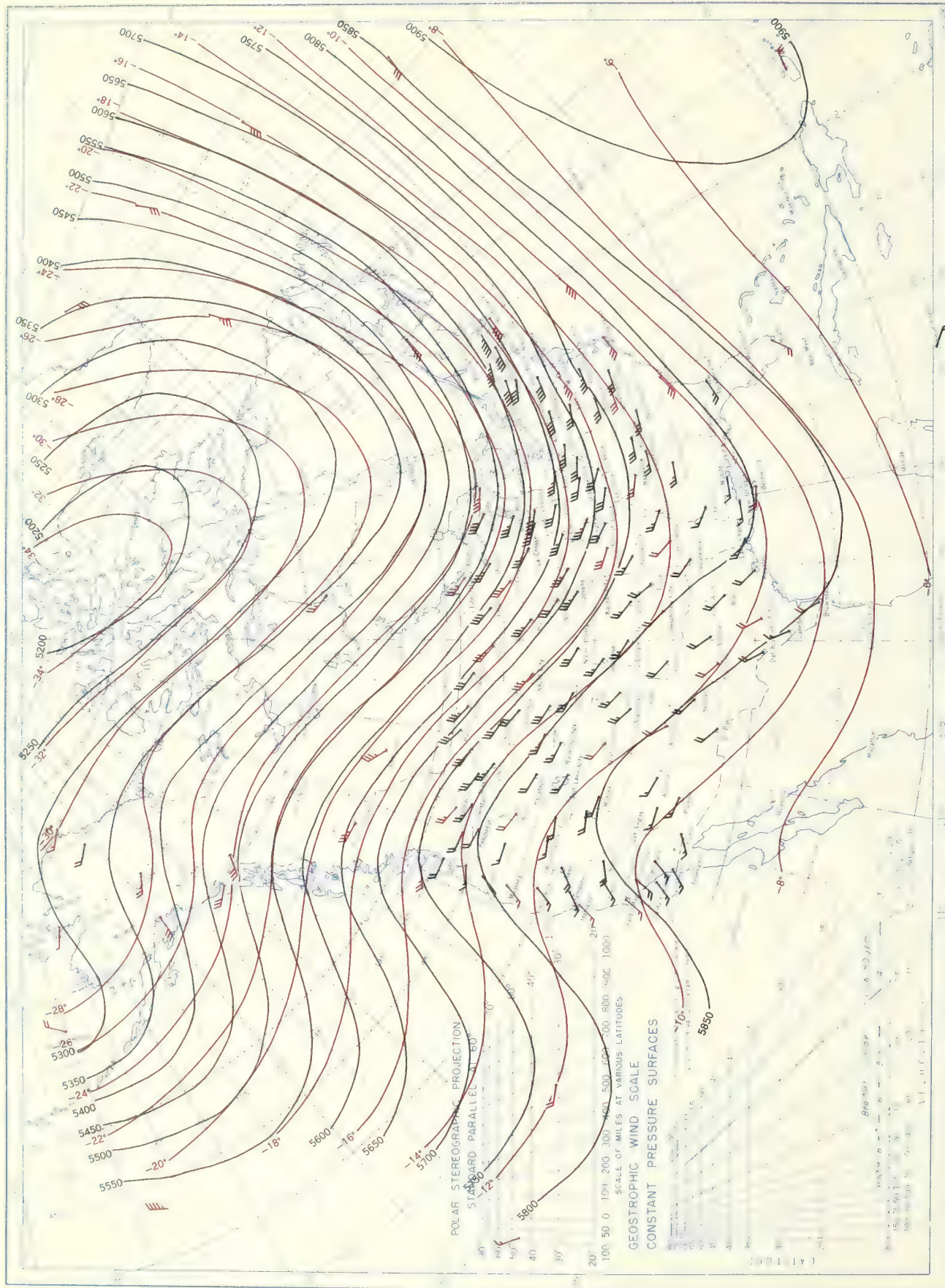
Chart XIII. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 100-mb. Pressure Surface, Average Temperature in °C. at 700 mb., and Resultant Winds at 3000 Meters (m.s.l.), October 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0300 G. M. T.



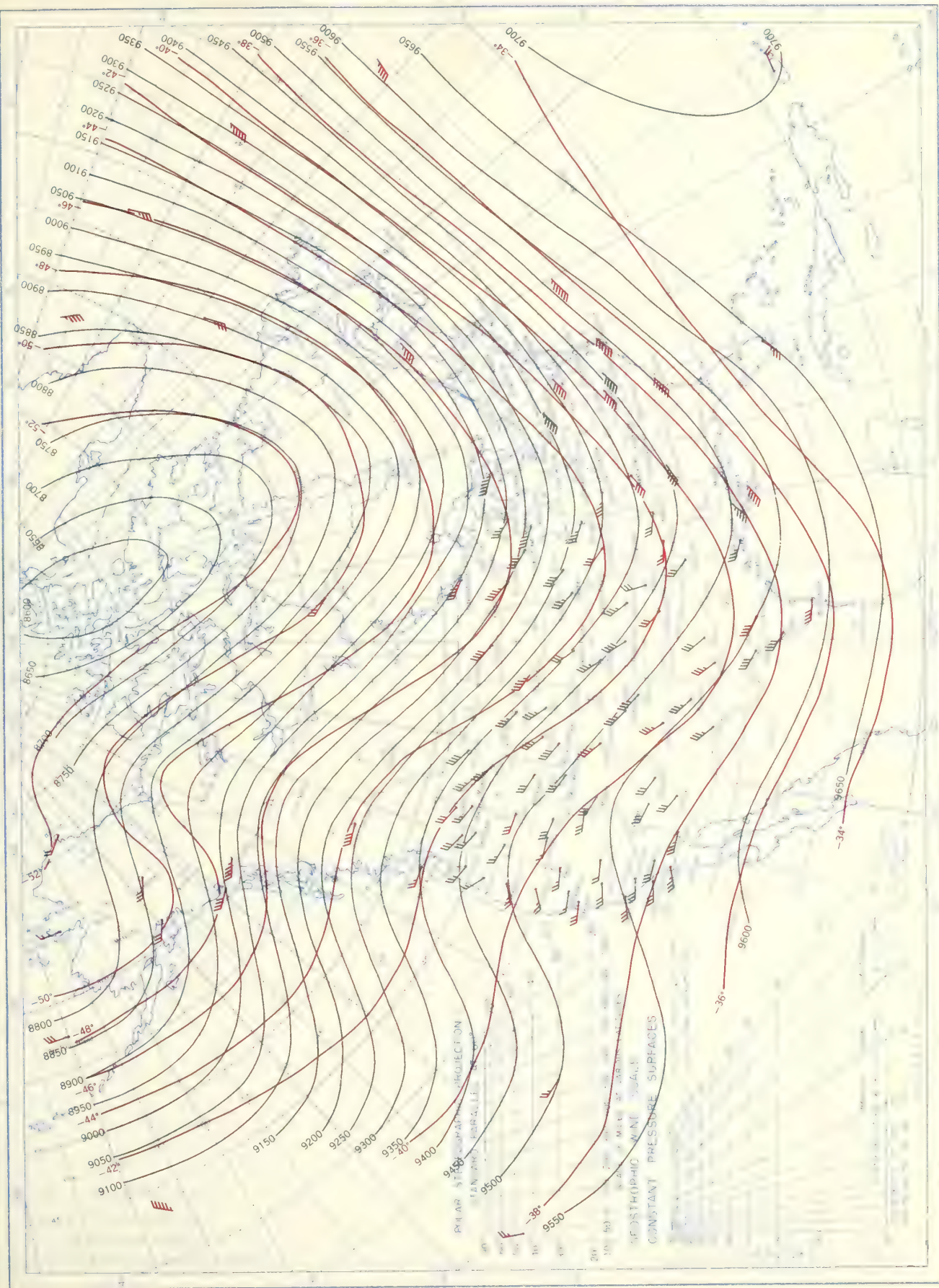
Chart XIV. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 500-mb. Pressure Surface, Average Temperature in °C. at 500 mb., and Resultant Winds at 5000 Meters (m.s.l.), October 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T.



those shown in red are based on rawing at 0300 G. M. 'T.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T.



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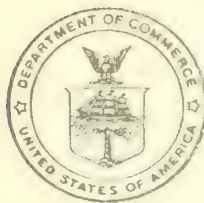
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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

NOVEMBER 1952

Volume 3 No. 11





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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

Volume 3 No. 11

NOVEMBER 1952

### GENERAL SUMMARY OF WEATHER CONDITIONS

Sufficient precipitation to end or greatly alleviate the fall drought was the most important weather feature of November. For the second time since March the monthly amount was above the long-term mean for the United States. However, rainfall continued deficient in the Pacific Northwest where winter grain prospects remained rather poor and runoff continued inadequate for hydroelectric power production. Also, in the remainder of the Country, the first week or 10 days were without beneficial rainfall, thus continuing the long dry period that began early in September in most sections. During this period further losses from forest and grass fires occurred, water supplies in many localities became dangerously low, or failed entirely, germination of a considerable portion of the winter grain crop in the Great Plains was seriously delayed, and dried up pastures enforced supplementary feeding of livestock earlier than usual. In contrast, this dry, sunny weather permitted the completion of fall harvesting without loss, and was favorable for further drying of a near-record corn crop. The Nation-wide temperature average remained above normal for the second consecutive month. Sunshine was abundant in the Great Lakes Region, the upper Mississippi Valley, and most of the far West, and only slightly below normal in most other areas. More than the usual number of thunderstorms occurred in the extreme southwest, eastern Texas, and the Lake Region.

**PRECIPITATION.**—The high fire hazard prevailing generally during the opening decade was brought to an end in the lower Great Plains and in most sections east of the Mississippi by general rains on the 9th and 10th, and in the remainder of the Country by additional falls from the 14th to the 22d. Precipitation was again general in the central interior from the 23d through the 26th and from the eastern portions of the Great Plains to the Atlantic Coast on the 29th and 30th. This moisture was sufficient to end the drought in the far Southwest and from the eastern portions of the Great Plains to the Atlantic Coast, although in many sections ground water remained low. At the end of the month surface moisture was mostly adequate to germinate winter wheat that had been sown in the dust, but, except in the deep South, germination and growth were limited by cold weather.

Monthly precipitation totals were above normal in the far Southwest, lower Great Plains, Mississippi Valley, and central Atlantic coastal areas. Greatest accumulations were in eastern Texas and the Mississippi Valley. Some of the larger totals in these areas were as follows: Alvarado, Tex., 11.45 inches; Kinder, La., 7.30; Sledge, Miss., 6.91; Elijah, Mo., 8.18; Pella, Iowa, 8.00; and Langley, Ark., 14.05, which was the greatest monthly total reported in the United States. In central Atlantic coastal areas, accumulations ranged up to 11.09 inches at Mt. Pocono, Pa., 8.05 at Long

Valley, N. J., 8.38 at Laurel, Md., 7.89 at Elkwood, Va., and 11.46 inches at Manteo, N. C. This was the wettest November on record in Maryland and the third wettest in Virginia.

Precipitation was generally less than 50 percent of normal in Florida, 75 percent in the Ohio Valley, and less than 50 percent in the Pacific Northwest and most of the northern Great Plains. State-wide averages were among the lowest on record in Idaho, the lowest since 1936 for Washington, and the lowest since 1939 for Oregon.

**SNOWFALL.**—The first extensive snowstorm of the month occurred over the north-central interior from the 16th through the 18th. During this storm heavy snow, ranging up to 8 inches or more, fell in northeastern Colorado, western Nebraska, and over most of South Dakota.

An outstanding snowstorm occurred in eastern Tennessee on the 21st and 22d. At Knoxville 18.2 inches of snow, which fell during a 24-hour period, exceeded by 3.1 inches the previous 24-hour record established at that station in December 1896.

At intervals during the period from the 24th through the 27th, snow fell over the central interior as far South as northern Texas, northern Arkansas, and the Ohio Valley. During the passage of a severe storm from the lower Great Plains northward across the Lake Region on the 25th and 26th, blizzard conditions occurred in parts of Kansas, Nebraska, and Iowa, and heavy snow fell over a belt extending from northwestern Texas to the Great Lakes. Depths occurring in this storm ranged up to 9 inches in the Texas Panhandle, 15 inches in east-central Kansas, and 11 inches or more in southern Nebraska, south-western Iowa, southern Minnesota, and western Wisconsin. The Weather Bureau official at Concordia, Kans., described this storm as the most severe November snowstorm in 68 years of record. During the last 3 days of the month occasional snows fell in most northern areas east of the Rocky Mountains. Heavy local snows that fell in the localities immediately east of Lakes Erie and Ontario measured up to 10 inches in the Buffalo, N. Y., area on the 27th; and from 8 to 24 inches fell in parts of Jefferson, Lewis, and Oneida Counties of New York on the 28th when as much as 15 inches were reported to have fallen over Lewis County in 4 hours. On the 29th and 30th snow fell to a depth of 1 to 3 inches in a belt extending from Missouri and northern Arkansas through the Ohio Valley into parts of Pennsylvania, Maryland, New Jersey, and the southern portions of New York and New England.

West of the Rocky Mountains and in most areas near the Northern Border snowfall was generally much below normal. In the far Western Plateau such stations as Spokane, Wash., Boise, Idaho, and Winnemucca, Nev., received no measurable snow during the month. This was also true of Chicago, Ill., Fort Wayne, Ind., Detroit, Mich., and many other stations immediately south of the Great Lakes.



## GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

NOVEMBER 1952

**TEMPERATURE.**—Above-normal temperatures prevailed generally during the first half of the month. The highest temperatures were recorded at practically all stations during the first week, with Brawley, Calif., recording 100° on the 1st for the month's highest. A few stations in the central interior recorded their highest readings during the 3d week. A cold period occurred from the 5th to the 8th east of the Rockies, with freezing temperatures as far south as extreme northern Florida.

The last half of the month averaged cooler than normal in most sections, with cold periods east of the Rockies from the 20th to the 22d and from the 26th to the 30th. Lowest temperatures generally occurred during this latter period, except on the 8th in the Southeast. Lowest for the month was -37° at Bondurant, Wyo., on the 26th. Subzero minima were general in the north-central interior during the last 3 days of the month.

Except in the northeastern quarter of the Country, average monthly temperatures were below normal. This was one of the coldest Novembers of record in the far West. From the 20th through the 30th, temperatures in Colorado averaged 20° to 30° below normal for the most extended November cold period on record in that State. In spite of the very low average temperatures in the far West, there were few unusual extremes, and no severe

cold waves. From the 25th to the 29th light frosts occurred in southern Arizona, and a few stations in this State experienced their coldest November on record.

**DESTRUCTIVE STORMS.**—A tornado in northern Missouri on the 16th and a general cyclonic storm in the North-Central States on the 25th and 26th accounted for most of the month's storm losses. During the storm on the 25th and 26th winds reached gale speeds over parts of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, and Wisconsin, with gusts at some points exceeding hurricane speeds. Widespread minor losses such as television antennae, windows, signs, trees, and power and communication lines, totaled \$1,200,000 in Illinois alone. This storm resulted in at least 20 deaths and numerous injuries, due mostly to traffic accidents in Iowa, Kansas, and Minnesota. The tornado in northern Missouri caused \$1,300,000 damage, most of which occurred at Hopkins. On the 17th a tornado caused \$26,000 damage near Mena, Ark., and on the 19th another one caused losses of \$200,000 in Granville County, N. C. Other tornadoes occurred in Arizona, California, Iowa, and Kansas but damage was only minor. Wind and heavy rains caused some damage and a few deaths and injuries from Maryland and Delaware northward along the Atlantic Coast on the 22d and 23d.



# CONDENSED CLIMATOLOGICAL SUMMARY

Table 1

NOVEMBER 1952

Section	Temperature								Precipitation							
	Average	Departure from normal	Monthly extremes						Average	Departure from normal	Monthly extremes				Station	Least
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least		
	°F	°F		°F			°F		In	In		In				In
Alabama	52.8	-1.4	Chatom	87	3	4 Stations	19	5	2.55	-0.87	Swaim	5.02	Highland Home	0.84		
Arizona	46.1	-3.7	2 Stations	96	4	Alpine	18	26	1.95	+1.24	Young 12N	7.65	Yuma Valley	.29		
Arkansas	49.7	-1.5	do	88	2	2 Stations	9	28	7.01	+3.21	Langley	14.05	2 Stations	2.43		
California	49.1	-2.9	Brawley	100	1	Soda Springs	-3	28	2.29	+2.25	Cuyamaca	6.91	Brawley	.08		
Colorado	30.0	-4.9	2 Stations	80	1	Wagon Wheel Gap 3N	-32	27	1.07	+2.24	Wolf Creek Pass 4W	7.99	Rangely	.11		
Connecticut	42.5	+1.6	Stamford	73	1	2 Stations	12	9	3.32	-.52	Walcott Reservoir	7.78	Graton	2.06		
Delaware	46.7	.0	Georgetown	75	2	Millsboro	15	29	5.53	+2.54	Lewes	6.81	Middletown 2S	4.70		
Florida	65.2	+2.2	Ft. Lauderdale	90	11	3 Stations	27	22	1.11	-1.10	Marianna Ind. School	4.01	Hypoluxo	.04		
Georgia	55.2	.0	3 Stations	87	3	Blairsville Exp. Sta.	15	3	2.01	.66	Tray Mountain	6.71	Lexington	.70		
Idaho	29.9	-5.4	Oakley	70	4	Grouse	-28	25	2.69	+1.26	Pierce RS	1.72	Buhl	.07		
Illinois	44.0	+1.8	Carlyle	82	2	Stockton	3	28	2.95	+3.33	Freeport Sew. Plant	5.80	Roberts	1.65		
Indiana	43.8	+1.6	3 Stations	80	16	2 Stations	7	29	2.75	-.27	W. Lafayette CAA AP	4.00	Petersburg	1.31		
Iowa	38.4	+1.0	2 Stations	79	1	Atlantic 1NE	16	28	2.73	+1.01	Pella	8.00	Alton	.90		
Kansas	41.3	-2.5	do	87	1	Oberlin	-18	28	1.71	+3.32	Hiawatha	4.86	Jerome 2SE	.28		
Kentucky	46.2	-.1	do	84	15	Princeton	-10	28	3.21	.30	McKee 1SE	6.92	Greensburg Hwy. 61	1.11		
Louisiana	56.6	-1.7	8 Stations	86	2	2 Stations	22	21	4.23	+1.11	Kinder 4N	7.30	Port Sulphur	1.22		
Maine	36.0	+9.9	2 Stations	70	2	3 Stations	9	29	2.04	+1.57	Bar Harbor	3.98	Jackman	.77		
Maryland	46.7	+1.4	Waldorf Pol. Brks.	79	3	New Germany	3	29	6.21	+3.45	Laurel 3W	8.38	Friendsville 4NNW	2.45		
Massachusetts	42.2	+1.2	Weston	75	2	Walpole 1S	5	12	2.14	-1.54	Chesterfield	4.26	Amherst	.89		
Michigan	38.5	+2.5	Wayne	74	1	2 Stations	3	30	3.05	+3.53	Mancelona	5.69	Ontonagon	1.05		
Minnesota	32.5	+3.1	Grand Meadow	78	2	do	-18	30	1.07	-.11	Caledonia	2.62	Ottertail	.17		
Mississippi	53.3	-1.7	3 Stations	88	1	3 Stations	16	4	3.75	-.08	Sledge	6.91	Pascagoula H.S.	1.77		
Missouri	44.9	+3.3	Harrisonville	88	1	Tarkio	-1	30	3.44	+7.71	Elijah	8.18	Memphis	1.50		
Montana	29.6	-2.3	2 Stations	74	4	West Yellowstone	-36	26	.52	.26	Mike Horse	2.54	Volborg	.00		
Nebraska	35.0	-2.4	3 Stations	80	1	Curtis	-20	28	1.09	+3.31	Omaha (West)	4.54	New Castle	.15		
Nevada	35.8	-4.8	Indian Springs	84	1	Wilkins	13	28	.48	-.16	Adaven	1.41	Basalt	T		
New Hampshire	37.2	+1.7	Windham	74	2	Fabyan	5	14	2.08	-1.30	Windham	4.35	Warren 1SE	.70		
New Jersey	45.1	+1.1	Lambertville	75	1	Layton 3NW	8	29	4.85	+1.43	Long Valley	8.05	Sandy Hook	2.35		
New Mexico	38.7	-4.2	2 Stations	89	1	Gavilan	-35	27	.92	+3.31	Sheep Laboratory	3.19	3 Stations	T		
New York	40.7	+2.5	4 Stations	73	1	Saranac Lake	3	29	2.71	-.41	Slide Mtn.	9.83	Plattsburg	.66		
North Carolina	50.6	+6.6	Oxford 2SW	87	3	Celo	9	8	1.34	+1.52	Manteo	11.46	2 Stations	1.12		
North Dakota	30.3	+2.9	3 Stations	71	4	Medora 4NNE	-18	28	.47	-.14	2 Stations	2.18	Haynes 4NE	.00		
Ohio	43.6	+2.1	Vickery 2NW	79	18	Fredericktown Swg.	4	29	1.84	-.89	Chardon	3.48	Columbus-Ohio S.U.	E.80		
Oklahoma	48.4	-1.5	Hollis	92	1	Kenton	-7	27	2.81	-.78	Carnasaw Tower	10.94	Goodaell	.27		
Oregon	35.3	-4.9	Richland	75	12	Fremont	13	28	1.08	2.79	Brookings	5.07	Redmond	.00		
Pennsylvania	42.9	+1.6	Wellsville	76	1	2 Stations	3	29	4.61	+1.59	Mt. Pocono 2N AP	E11.09	Donora	1.51		
Rhode Island	44.1	+1.0	Providence WB City	72	1	Kingston	14	9	2.26	-1.50	Greenville	3.43	Block Island WB	1.50		
South Carolina	54.0	+1.1	Saluda	86	3	2 Stations	20	8	2.06	-.28	Caesars Head	5.72	Bethera 4SW	.00		
South Dakota	33.1	.0	Mission 14SSE	79	4	do	25	27	.71	+1.05	Andover 7N	2.41	7 Stations	.00		
Tennessee	47.4	-1.0	Dover 1NW	83	1	Waynesboro	11	28	3.63	-.08	Abrams Creek	6.72	Smyrna 4NE	1.70		
Texas	54.2	-1.5	Boquillas Ranger Sta.	99	1	Vega	-3	26	3.27	+1.43	Alvarado	11.45	Ysleta	T		
Utah	32.9	-4.2	2 Stations	80	1	Soldier Summit	-20	27	.75	-.18	Alta	3.77	Bonanza	.02		
Vermont	37.2	+2.3	Enosburg Falls	70	2	2 Stations	3	9	1.70	-1.51	Mays Mill	4.28	Northfield Norwich	.62		
Virginia	47.5	+7.7	Bowling Green	85	3	do	11	29	5.24	+2.65	Elkwood 6SE	7.89	Davenport	1.48		
Washington	36.1	-3.8	Colfax 1NW	70	4	Chesaw	4	30	1.05	-3.63	Spruce	8.22	Othello SE	.13		
West Virginia	44.1	+9.9	Williamson	80	18	Canaan Valley	0	29	2.72	-.13	Omps	7.37	Kayford	1.05		
Wisconsin	35.7	+2.7	2 Stations	73	1	Grantsburg CAA AP 2N	20	30	1.92	+.03	Beloit College	4.46	Holcombe	.43		
Wyoming	26.0	-5.3	do	77	4	Bondurant	-37	26	.45	.35	Esterbrook	1.83	Shoshoni	.00		
*Alaska	40.7	-1.7	Ketchikan	73	22	Circle Hot Springs	3	30	2.52	-.37	Little Port Walter	27.17	Wainwright	.04		
*Hawaii	72.8	-.7	Puunene CAA AP	92	13	Kolekole	35	31	8.03	+2.46	Puohakamoa 2	34.90	Puako	T		
Puerto Rico	76.1	-.5	Coloso	94	11	Garzas Dam	50	28	4.00	3.00	San Juan (Co)	11.79	Santa Isabel	.28		

° Other dates also.

\* September 1952.

\*\* October 1952.



## CLIMATOLOGICAL DATA

NOVEMBER 1952

Table 2

State and station	Elevation (ground)	Pressure		Temperature										Precipitation					Wind					No. of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		Station	Sea level	Average			Departure from normal			Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal		Greatest in 24 hours	No. of days	Snow, Sleet, Hail		Max. depth on ground	Average hourly speed	Prevailing direction	Fastest mile		to sunset		Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
				Maximum	Minimum	Average	Highest	Lowest	Date		Max 90° F or above	Min 32° F or below				Average	%	In.		In.	In.				In.	M. p. h.	M. p. h.	Speed		Direction	Date	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
																																			Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	Ft	Mb	Mb	F	F	F	F	F	F	F	F	F	%	In.	In.	In.	In.	In.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.	M. p. h.



## CLIMATOLOGICAL DATA

Table 2-Continued

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State and station	Elevation (ground) Ft.	Pressure			Temperature										Precipitation										Wind				No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity		Total	Departure from normal	Greatest in 24 hours		No. of days		Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
												Max 90° F or above	Min 32° F or below		%	In.			In.	In.	In.	In.	In.	In.			In.	In.								In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.



## CLIMATOLOGICAL DATA

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Page 2—Continued

State and station	Pressure			Temperature										Precipitation										Wind				No. of days					
	Elevation (ground)	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max 90° F or above Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine		
																		01 inch or more	With thunderstorms	Total	Max. depth on ground												
	ft	Mb	Mb	°F	°F	°F	°F	°F	°F	°F	°F	%	in.	in.	in.	in.	in.	in.	in.	in.	M	M	M	M									
																					p. h.	p. h.											
NEVADA																																	
Elko	5075	846.3	1021.1	47	11	29.1	-5.8	65	4	-5	28	0	29	14.58	0.28	-0.92	0.27	2	0	2.7	1	3.5	E	*30	NW	12	17	4	9	4.0	70		
Ely	6257	809.0	1021.0	43	10	26.9	-5.8	66	10	-8	26	0	30	--	.43	-.23	.30	3	0	5.3	5	11.0	---	43	S	14	13	6	11	4.9	77		
Las Vegas	2167	950.2	1019.2	62	37	49.5	-1.8	78	1	21	27	0	7	20.35	.16	-.06	.14	2	0	.0	0	5.2	---	*24	SSE	14	16	5	4	4.0	72		
Reno	4397	863.5	1020.2	50	19	34.5	-2.2	68	4	9	24	0	29	21.63	.50	-.14	.30	4	0	1.2	T	7.2	SSW	40	SE	13	15	5	10	4.5	79		
Winnemucca	4999	870.0	1021.8	56	12	31.0	-7.4	47	4	-3	28	0	30	15.53	.12	-.55	.08	3	0	T	T	7.2	---	29	NE	23	15	7	8	4.1	81		
NEW HAMPSHIRE																																	
Concord	339	1007.8	1018.9	47	29	38.0	+1.6	72	2	13	9	0	19	30.76	1.48	-1.60	.67	12	0	1.2	T	5.4	NW	36	NE	22	7	7	16	6.8	34		
Mt. Washington	5262	803.1	1013.2	27	17	22.0	-2.4	40	2	6	29	0	29	--	84	-3.06	.42	20	0	20.2	8	33.8	N	*91	NW	12	4	7	19	7.7	36		
NEW JERSEY																																	
Atlantic City CO	8	1017.3	1019.3	55	43	48.8	+3.2	69	1	27	29	0	3	--	4.21	+1.39	1.72	7	1	2.6	3	14.8	---	58	E	21	12	4	14	5.5	65		
Newark	11	1018.3	1019.3	54	39	46.5	+2.5	72	1	27	29	0	9	36.69	3.41	-.02	1.15	9	0	.9	1	8.1	SW	*35	E	21	12	2	16	6.2	--		
Trenton CO	56	1012.2	1019.3	51	39	46.6	+2.2	72	1	25	29	0	6	--	5.33	+2.60	2.21	8	0	2.8	3	8.4	---	40	E	21	11	3	16	6.2	50		
NEW MEXICO																																	
Albuquerque	5310	849.0	1017.2	52	28	40.1	-3.2	74	1	10	29	0	20	23.55	.53	+.07	.19	5	1	2.7	1	9.0	N	43	E	9	15	8	7	3.8	71		
Clayton	4969	845.2	1018.4	50	24	37.0	-6.3	77	1	0	27	0	22	17.53	.66	+.11	.54	4	0	6.3	5	---	---	---	---	---	---	15	5	10	4.6	--	
Raton	6379	803.9	1018.5	45	18	31.5	-7.1	71	1	-8	26	0	29	--	.31	--	.19	8	0	6.4	2	---	---	---	---	---	---	14	5	11	4.8	--	
Essex	3612	894.7	1017.9	58	30	44.2	-3.9	83	1	17	26	0	29	24.51	.55	-.30	.29	3	0	3.0	2	9.7	---	43	SW	16	15	6	9	4.5	--		
NEW YORK																																	
Albany	277	1014.6	1018.4	49	31	39.8	+1.5	68	1	18	9	0	17	32.75	2.53	+.05	1.49	8	0	1.0	1	7.5	SSE	31	NE	22	2	9	19	7.7	47		
Bear Mountain	1300	---	---	47	36	41.7	--	66	1	21	29	0	11	--	4.48	--	1.93	10	0	T	T	---	---	---	---	---	---	12	4	14	6.1	--	
Long Island	1691	957.7	1017.7	46	33	39.5	--	65	2	16	29	0	16	32.77	2.43	---	.64	13	0	2.1	1	13.2	SSE	48	NW	12	2	8	20	8.1	26		
Buffalo	93	988.2	1017.1	50	35	42.9	+4.4	69	2	17	30	0	7	34.74	2.89	-.13	.90	13	1	11.2	10	15.1	WSW	47	SW	26	1	4	25	8.5	21		
New York CO	10	1007.5	---	51	42	45.1	+1.9	70	1	28	29	0	2	--	2.92	-.04	1.01	10	0	1.0	1	12.5	---	50	SE	20	11	4	15	6.0	54		
New York	19	1017.6	1019.2	55	43	48.9	--	72	1	30	29	0	2	37.67	2.93	--	1.48	10	0	1.7	2	12.5	NW	59	E	22	12	2	16	6.3	--		
Oswego	292	1004.4	1016.9	49	37	43.1	+3.7	68	2	24	29	0	8	--	2.57	-.82	.71	14	0	5.7	5	10.9	---	34	S	26	3	5	22	8.2	28		
Rochester	445	997.6	1017.2	50	35	42.8	+4.1	70	2	20	30	0	11	34.74	2.39	-.15	.65	13	0	T	T	11.6	W	42	W	6	1	9	20	7.8	29		
Schenectady	217	---	---	48	35	41.2	+2.6	65	1	22	9	0	12	--	2.67	-.16	1.52	10	0	1.0	T	---	---	---	---	---	---	5	9	16	7.1	--	
Syracuse	399	995.6	1018.1	50	35	42.5	+5.3	70	2	15	30	0	12	34.73	2.36	-.70	.57	14	0	4.2	1	11.3	WSW	47	S	26	3	7	20	7.9	26		
NORTH CAROLINA																																	
Asheville CO	2297	---	---	57	35	46.1	+1.0	76	2	21	8	0	11	--	2.53	+.30	1.84	9	0	1.9	1	9.0	---	29	NW	21	12	4	14	5.5	52		
Asheville	2093	945.1	1020.3	41	20	29.5	-5.0	62	4	-8	27	0	26	--	33	--	1.70	10	0	1.1	1	6.7	NNW	---	---	---	---	---	---	---	---	---	
Charlotte	711	991.5	1019.6	63	39	51.0	+2.1	80	3	28	8	0	6	38.68	1.28	-1.29	.55	7	0	T	0	5.0	S	30	N	3	13	6	11	5.3	65		
Greensboro	891	988.2	1020.5	50	33	43.4	+1.7	73	3	22	8	0	11	37.73	2.39	-.07	.74	9	0	T	0	5.4	SW	30	NNW	3	11	7	12	5.6	58		
Hatteras	4	1019.0	1019.5	53	50	56.7	+4.4	72	2	39	30	0	0	50.79	11.32	+7.83	8.73	10	2	.0	0	10.8	NNW	45	SE	21	9	12	9	5.0	54		
Raleigh	400	---	---	63	41	52.1	+1.1	81	3	27	29	0	3	--	4.31	+2.03	2.16	7	1	T	0	5.5	---	19	NW	7	13	7	10	5.0	66		
Raleigh	438	1004.1	1019.9	63	39	50.7	--	81	3	24	8	0	8	39.77	4.40	--	2.51	8	1	T	T	6.5	SW	---	---	---	---	---	---	---	---	---	
Wilmington	10	1018.0	1019.0	57	41	55.2	-1.8	73	3	29	8	0	1	47.79	5.36	+3.40	2.66	8	0	.0	0	7.7	NNW	36	SW	4	17	6	7	4.0	66		
Winston Salem	967	981.4	1020.0	60	39	49.7	+1.8	78	3	26	29	0	5	36.64	2.67	+.07	.85	9	0	T	0	6.6	NNW	---	---	---	---	---	---	---	---	---	
NORTH DAKOTA																																	
Bismarck	1653	1017.3	1017.9	43	18	30.4	+3.9	70	4	-7	28	0	27	19.70	.13	-.44	.10	4	0	.4	T	10.7	NNW	52	NW	18	8	6	16	6.8	47		
Devils Lake CO	1471	961.4	---	48	20	29.5	+5.0	62	4	-8	27	0	26	--	.70	-.52	.11	5	0	1.1	1	9.8	---	32	NW	5	10	4	16	6.1	55		
Fargo	895	980.7	1016.4	41	20	30.8	+3.7	63	4	-1	28	0	29	22.71	1.67	+.77	1.56	3	1	.8	T	14.1	NNW	42	N	26	9	7	14	6.0	40		
Williston CO	1877	948.5	1018.1	41	22	31.4	+4.2	67	4	2	27	0	25	22.74	.15	-.43	.15	1	0	1.8	T	7.3	---	31	W	4	2	10	18	7.8	42		
OHIO																																	
Cincinnati	1210	980.0	1018.6	51	33	41.8	+2.0	69	2	10	29	0	12	33.74	2.07	-.46	.72	11	1	.6	1	10.6	S	---	---	---	---	3	11	16	7.2	--	
Cincinnati Obs.	761	---	---	55	38	46.5	+4.0	76	16	20	28	0	9	--	2.28	-.57	.91	12	1	2.9	3	7.4	---	28	SW	26	---	---	---	---	40		
Cincinnati	781	986.5	1019.0	53	36	44.4	+1.2	73	16	17	28	0	10	32.66	2.35	-.68	.86	12	2	3.7	3	10.4	SSW	---	---	---	---	9	6	15	6.6	--	
Cleveland	663	---	---	53	39	46.2	+5.3	73	2	17	29	0	6	--	2.53	-.11	.94	11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Cleveland	747	989.8	1017.7	49	36	44.0	+5.0	72	2	12	29	0	10	34.70	2.49	-.15	1.21	15	4	.5	T	11.8	S	49	---	---	---	---	---	---	---	---	
Columbus CO	724	---	---	52	37	44.2	+3.3	73	17	18	29	0	9	--	.99	-.78	.31	11	1	2.3	2	---	---	---	---	---	---	---	---	---	---	---	
Columbus	815	993.8	1019.3	48	33	43.3	+3.2	73	2	11	29	0	15	34.71	1.03	-.198	.27	12	1	2.3	2	9.4	SE	61	N	21	2	12	16	7.4	36		
Columbus	1002	987.7	1018.7	52	35	43.0	+2.6	70	2	16	28	0	14	34.75	2.22	-.64	.79	15	1	3.6	3	10.3	S	57	SW	26	6	9	15	6.7	45		
Columbus CO	603	994.6	---	52	37	44.9	+3.8	73	2	14	29	0	10	--	1.86	-.53	.80	3	3	.2	T	9.5	---	42	W	26	3	9	18	7.3	50		
Columbus	621	994.2	1017.5	52	33	42.5	+3.8	72	9	13	29	0	14	33.72	1.92	-.48	.64	8	1	.1	T	12.2	SW	56	SW	26	4	5	21	7.6	26		
Columbus	1178	974.9	1018.1	50	34	42.1	+1.9	71	2	10	29	0	13	33.72	2.71	+.39	.80	11	2	1.5	1	10.6	WSW	*35	WSW	26	3	9	18	7.4	--		
OKLAHOMA																																	
Oklahoma City	1254	970.9	1018.4	58	38	48.0	-.8	81	1	21	30	0	11	34.64	1.92	+.05	1.27	8	0	.1	T	14.8	SSE	47	S	25	12	9	9	4.6	59		
Tulsa	672	994.2	1018.8	59	36	4																											



## CLIMATOLOGICAL DATA

Table 2—Continued

NOVEMBER 1952

State and station	Pressure				Temperature										Precipitation				Wind				No. of days (sunrise)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	Elevation ft	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal				No. of days	No. of days	Snow, Sleet, Hail	Max depth	Average	Prevailing	Speed	Direction	Prevailing	Speed	Direction	Prevailing	Speed	Direction																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
							°F	°F	°F	°F															°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F



## CLIMATOLOGICAL DATA

Table 2-Continued

NOVEMBER 1952

State and station	Elevation (ground)	Pressure			Temperature										Precipitation										Wind				No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)	Possible sunrise	
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		Date	Clear	Partly cloudy	Cloudy			
												Max 90° F or above	Min 32° F or below						Ol inch or more	With thunderstorms	Total	Max depth on ground			Speed	Direction							
																																	°F
PACIFIC AREA																																	
Canton Island	9	1007.8	1008.2	91	78	84.6	---	95	4	75	23	21	0	72	71	0.97	---	0.53	5	0	0.0	0	---	---	---	---	---	5	16	9	6.0	---	
Hilo	28	1014.6	1016.1	80	66	73.0	---	83	2	64	17	0	0	66	84	13.54	---	1.55	27	2	0.0	0	4.8	SW	23	E	28	1	6	23	8.2	24	
Honolulu CO	12	---	---	80	72	75.7	+1.2	84	5	68	19	0	0	---	---	1.97	-1.87	.47	18	0	0.0	0	---	---	---	---	---	---	---	---	---	---	
Honolulu	7	1015.9	1016.4	81	71	76.1	---	85	5	67	7	0	0	65	71	1.21	---	.37	12	0	0.0	0	13.8	ENE	39	NE	14	10	11	9	5.3	65	
Koror CO	94	1003.4	1007.1	89	76	82.2	---	92	29	72	8	9	0	---	---	9.51	---	2.30	22	2	0.0	0	---	---	---	---	---	1	12	17	7.8	---	
Linne	115	1011.5	1016.8	80	69	74.5	---	83	5	62	21	0	0	68	79	4.06	---	2.16	26	2	0.0	0	13.2	NE	34	E	29	5	11	14	6.3	55	
Moen (Truk Group)	3	1008.8	1009.1	86	76	80.7	---	88	1	73	21	0	0	---	---	13.71	---	3.57	27	1	0.0	0	---	---	---	---	---	1	5	24	8.6	---	
Ponape CO	112	1004.7	1009.9	87	74	80.5	---	92	14	71	1	8	0	76	89	17.56	---	1.97	27	2	0.0	0	---	---	---	---	---	0	8	22	8.5	---	
Wake Island	11	1013.7	1014.1	85	77	80.8	---	88	1	69	3	0	0	73	76	1.27	---	.45	14	0	0.0	0	12.6	E	---	---	---	15	12	3	4.5	---	
Yap CO	51	1006.8	1008.7	88	76	82.4	---	93	4	73	20	10	0	---	---	7.80	---	2.14	24	2	0.0	0	---	---	---	---	---	0	7	23	8.6	---	
WEST INDIES																																	
San Juan CO	47	---	---	84	72	78.0	---	87	3	67	19	0	0	---	---	11.79	+5.02	2.82	22	2	0.0	0	---	---	---	---	---	---	---	---	---	---	
San Juan, P.R.	9	1010.5	1012.6	84	72	78.3	---	88	4	67	19	0	0	71	78	10.58	---	3.83	23	2	0.0	0	8.5	ENE	36	NW	23	11	15	4	4.5	77	
ALASKA																																	
October 1952	134	999.7	1004.9	44	32	38.0	+2.0	62	3	20	19	0	16	35	89	3.80	+1.93	1.58	18	0	12.6	7	4.0	NE	37	SE	3	1	5	25	8.7	20	
Anchorage	110	1013.2	1017.2	55	45	49.8	+3.1	62	4	39	13	0	0	47	91	8.93	-6.49	1.40	21	0	0.0	0	11.5	ESE	*50	ESE	19	1	4	26	9.1	---	
Annette Island	22	1010.2	1010.6	22	12	17.1	+2	38	5	-5	30	0	31	14	86	.18	-.37	.10	8	0	2.4	3	11.5	E	*30	NE	*3	1	4	26	8.6	---	
Barrow	21	999.7	1001.1	40	29	34.5	+2.7	57	4	16	23	0	22	32	90	1.42	-.33	.39	15	0	.5	T	8.9	N	*27	S	24	4	8	19	7.7	---	
Bethel	40	1005.1	1006.9	48	38	42.8	+2.5	53	1	25	24	0	9	40	89	26.63	+13.97	6.29	28	1	T	T	6.1	ESE	*20	E	*3	2	1	28	9.2	---	
Cordova	436	989.2	1006.6	38	23	30.5	+3.2	58	5	2	23	0	27	24	76	.47	-.50	.17	8	0	8.3	7	3.5	N	*16	ENE	3	0	6	25	8.9	---	
Fairbanks	120	1000.3	1005.0	35	23	28.7	+2.3	56	4	4	23	0	27	25	84	.68	+1.0	.22	9	0	2.9	3	6.6	N	*35	ESE	25	1	4	26	8.9	---	
Galena	25	1001.7	1002.7	36	31	33.4	+1.9	40	*5	27	21	0	24	30	85	1.27	-.13	.47	16	0	3.1	1	19.9	NNE	*44	NNE	3	1	2	28	9.4	---	
Gambell	15	1012.9	1013.8	49	41	44.9	+3.6	55	*4	31	26	0	2	43	91	13.29	+4.97	2.21	26	0	0	0	9.9	E	42	SE	19	1	1	29	9.5	13	
Juneau	10	1004.7	1005.3	32	24	27.9	+3.0	44	4	10	23	0	28	24	85	.51	-.06	.12	9	0	7.9	3	10.2	ENE	*35	ENE	3	2	8	21	7.9	---	
Kotzebue	334	991.5	1004.5	36	25	30.2	+2.6	59	4	3	24	0	24	28	88	1.86	+1.2	.47	15	0	7.6	2	4.1	N	*19	ESE	3	2	5	24	8.8	---	
McGrath	13	1002.4	1003.2	37	27	31.9	+2.5	49	*5	10	22	0	22	27	80	1.65	-.05	.48	13	0	3.0	2	12.3	ENE	32	NE	3	8	3	20	7.3	28	
Nome	1713	944.5	1008.4	36	19	27.4	+2.6	51	5	0	31	0	31	24	87	.74	+2.3	.58	5	0	5.2	4	5.2	NW	*18	WSW	29	1	7	23	8.7	---	
Northway	22	997.6	998.7	43	37	39.6	+6	45	*1	28	21	0	4	38	91	4.42	+1.10	1.11	28	0	1.2	T	---	---	---	---	---	0	6	25	8.9	---	
St. Paul Island	337	1000.0	1013.6	24	7	15.4	+3.0	45	5	-18	23	0	31	10	79	.42	-.09	.14	12	0	7.9	6	6.3	WSW	---	---	---	3	6	22	8.2	---	
Umiat	28	1009.5	1010.8	50	39	44.2	+2.6	55	*2	27	23	0	3	42	92	16.88	-2.43	2.58	25	1	T	0	10.4	ESE	*43	SE	19	1	2	28	9.3	---	
Yukutat																																	

Data from airport unless otherwise specified. CO indicates data from city office.

\* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

† Peak gust.

# Max. 70° F. or above for Alaskan stations.



## HEATING DEGREE DAYS

(Base 65 F.)

NOVEMBER 1952

Table 3

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period July through this month	Long term mean July through this month		This month	Period July through this month	Long term mean July through this month		This month	Period July through this month	Long term mean July through this month		This month	Period July through this month	Long term mean July through this month
ALABAMA				IOWA				NEW JERSEY (Cont'd.)				TEXAS (Cont'd.)			
Birmingham	393	661	462	Burlington	685	1272	1138	Trenton (CO)	541	940	912	Brownsville	91	96	73
Mobile (CO)	257	373	246	Charles City (CO)	819	1630	1582	NEW MEXICO				Corpus Christi	148	162	118
Mobile	256	372		Davenport (CO)	663	1200	1182	Albuquerque	740	887	914	Dallas	347	491	381
Montgomery (CO)	284	422	352	Des Moines	776	1354	1256	Clayton	834	1228	1048	Del Rio	244	262	233
Montgomery	335	505	354	Dubuque	801	1605	1391	Raton	996	1594		El Paso	459	506	160
ARIZONA				Keokuk (CO)	630	1082		Roswell	616	833	729	Ft. Worth	341	448	361
Flagstaff	1023	1753	1754	Sioux City	855	1471	1412	NEW YORK				Galveston (CO)	168	201	142
Phoenix (CO)	236	236	183	KANSAS				Albany	747	1456	1317	Galveston	167	203	
Phoenix	252	252		Concordia (CO)	732	1105	1020	Bear Mountain (CO)	691	1364		Houston (CO)	218	269	
Prescott	699	817		Dodge City	729	1062	976	Binghamton	756	1584	1419	Houston	233	291	185
Tucson	275	275		Goodland	932	1458	1187	Buffalo	654	1361	1357	Laredo	156	165	
Winslow	883	1030		Topeka (CO)	662	1008	954	New York (CO)	501	840	921	Lubbock	694	837	
Yuma	168	168	122	Topeka	695	1106		La Guardia Field	477	773		Palestine (CO)	306	420	332
ARKANSAS				Wichita	643	934	853	Oswego (CO)	649	1278	1382	Port Arthur (CO)	215	280	200
Ft. Smith	506	783	548	KENTUCKY				Rochester	659	1330	1336	Port Arthur	243	337	
Little Rock	448	714	517	Lexington	566	1037	908	Schenectady	711	1372		San Angelo	362	462	
Texasarkana	396	597		Louisville (CO)	502	873	814	Syracuse	669	1303	1375	San Antonio	250	311	204
CALIFORNIA				Louisville	538	980		NORTH CAROLINA				San Antonio	250	311	
Bakersfield	328	339	349	Pikeville (CO)	423	773		Asheville (CO)	563	957	847	Victoria	198	246	
Beaumont (CO)	148	482		LOUISIANA				Asheville	614	1105		Waco	319	430	
Bishop	685	853	866	Baton Rouge	263	395	243	Charlotte	411	667	591	Wichita Falls	426	555	
Blue Canyon	676	977		Lake Charles	211	343		Greensboro	490	813	755	UTAH			
Burbank	274	308		New Orleans (CO)	174	212	175	Hatteras	245	341	325	Milford	967	1359	
Eureka (CO)	456	1623	1572	New Orleans	195	273		Raleigh (CO)	378	629	599	Salt Lake City (CO)	842	1020	1162
Fresno	366	400	391	Int. Airport, Moisant	237	333		Raleigh	420	729		Salt Lake City	915	1182	1297
Los Angeles (CO)	201	214	187	Shreveport	342	526	350	Wilmington	290	460	401	VERMONT			
Los Angeles	216	315		MAINE				Winston-Salem	452	757		Burlington	755	1511	1635
Mt. Shasta (CO)	770	1113		Caribou	1048	2252		NORTH DAKOTA				VIRGINIA			
Oakland	354	632	705	Eastport (CO)	772	1677	1907	Bismarck	1031	1868	1975	Cape Henry (CO)	365	548	520
Red Bluff	370	390	454	Greenville (CO)	950	2083	2152	Devils Lake (CO)	1056	2071	2367	Lynchburg	498	882	788
Sacramento (CO)	375	407	436	Portland	813	1592	1518	Fargo	1020	1948	2015	Norfolk (CO)	338	517	530
Sacramento	431	495		MARYLAND				Grand Forks	1060	2089	2189	Norfolk	407	642	
Sandberg (CO)	618	700		Baltimore (CO)	457	729	776	Pembina	1073	1995		Richmond (CO)	427	719	700
San Diego	171	194	237	Frederick	553	947		Williston (CO)	1000	1845	2102	Richmond	460	796	
San Francisco (CO)	271	1008	896	MASSACHUSETTS				OHIO				Roanoke	517	887	813
San Francisco	382	885	875	Boston	595	1027	1105	Akron	690	1398	1260	WASHINGTON			
San Jose	315	421		Milton	683	1248		Cincinnati (CO)	518	907	927	Ellensburg	1009	1528	
Santa Catalina	290	431		Nantucket	571	1043	1016	Cincinnati	608	1122		Kelso	747	1336	
Santa Maria	321	806		Pittsfield	799	1676		Cleveland (CO)	555	1077	1152	North Head (CO)	520	1516	1519
COLORADO				ALABAMA				Cleveland	623	1197		Olympia	742	1464	
Alamosa	1197	2182		Alpena (CO)	797	1689	1771	Columbus	645	1222	1054	Port Angeles	611	1811	
Colorado Springs	999	1563		Detroit	660	1289	1310	Dayton	653	1216	1067	Seattle (CO)	580	969	1116
Denver	971	1416	1262	Escanaba (CO)	828	1886	1886	Sandusky (CO)	598	1113	1135	Seattle	712	1393	
Grand Junction	867	1112	1158	Grand Rapids (CO)	681	1364	1342	Toledo	668	1301	1235	Spokane	961	1448	1555
Pueblo	930	1347	1197	Grand Rapids	748	1527		Youngstown	678	1398		Stampede Pass (CO)	1043	2318	
CONNECTICUT				Lansing	736	1550	1485	OKLAHOMA				Tacoma (CO)	648	1209	1307
Bridgeport	585	1005		Marquette (CO)	810	1874	1944	Oklahoma City (CO)	497	688	625	Tatoosh Island (CO)	548	1857	1894
Hartford	671	1183	1177	Muskegon	718	1498		Oklahoma City	512	698		Walla Walla (CO)	858	1062	1096
New Haven	607	1091	1101	Sault Ste. Marie	904	2024	2058	Tulsa	523	755		Yakima	952	1375	1343
DELAWARE				Ypsilanti	685	1341		OREGON				WEST VIRGINIA			
Wilmington	579	1006		MINNESOTA				Baker (CO)	963	1552	1767	Charleston	541	998	
DIST. OF COLUMBIA				Duluth (CO)	1032	2246	2149	Baker	1064	1891		Elkins	682	1443	1275
Washington (CO)	478	787	831	Duluth	1035	2270		Burns (CO)	964	1474		Huntington (CO)	475	851	
Washington	499	822		International Falls	1119	2491		Eugene	788	1205		Parkersburg (CO)	559	1034	977
FLORIDA				Minneapolis	883	1672	1633	Meacham	970	1674		Petersburg	555	1037	
Apopka (CO)	167	222	178	Rochester	912	1850		Medford	776	1007	1083	WISCONSIN			
Daytona Beach	91	108		St. Cloud	1001	1990	1917	Pendleton	924	1226		Green Bay	844	1831	1617
Fort Myers	19	24	36	St. Paul	871	1655	1623	Portland (CO)	653	848	991	La Crosse	800	1554	
Jacksonville (CO)	116	165	162	MISSISSIPPI				Portland	725	1021		Madison (CO)	753	1467	1466
Jacksonville	139	187		Jackson	350	567	380	Roseburg (CO)	761	1047	1013	Madison	769	1575	
Key West (CO)	0	0	2	Meridian	357	608	398	Salem	785	1170		Milwaukee (CO)	717	1351	1386
Key West	0	0		Vicksburg (CO)	321	506	342	Sawtooth Summit (CO)	652	1126		Milwaukee	749	1466	
Melbourne	37	46		MISSOURI				Troutdale	660	935		WYOMING			
Miami (CO)	11	11	16	Columbia	621	1060	943	PENNSYLVANIA				Casper	1103	1758	
Int. Airport, Hialeah	8	3		Kansas City	605	942	909	Allentown	677	1199		Cheyenne	1083	1828	1813
Miami Beach	4	4		St. Joseph	702	1144	997	Eric (CO)	571	1143	1170	Lander	1147	1756	1970
Orlando	54	68		St. Louis (CO)	528	853	813	Harrisburg	608	1093	1025	Rock Springs (CO)	1181	1839	
Pensacola (CO)	205	286	214	St. Louis	572	968		Park Place (CO)	732	1449		Rock Springs	1207	1888	
Tallahassee	195	257		Springfield	623	1041	849	Philadelphia (CO)	487	792	817	Sheridan	1019	1689	
Tampa	47	61	65	MONTANA				Philadelphia	513	912		ALASKA			
West Palm Beach	15	15		Billings	947	1505		Pittsburgh (CO)	531	983	1025	October 1952			
GEORGIA				Butte	1321	2620		Pittsburgh	607	1177	1126	Anchorage	832	1923	
Albany	253	357	272	Glasgow (CO)	1016	1797		Reading (CO)	574	972	984	Annette Island	16	125	
Athens	386	605		Great Falls	934	1640		Scranton (CO)	645	1230	1246	Barrow	1892	4112	4122
Atlanta (CO)	359	568	536	Havre (CO)	1014	1799	1955	Williamsport	616	1307	1199	Bethel	938	2269	2431
Atlanta	359	561		Helena	1157	2003	1910	RHODE ISLAND				Cordova	678	2018	
Augusta	331	530	395	Kalispell	1019	2051	2104	Block Island	563	971	992	Fairbanks	1062	2221	2297
Columbus	338	518		Miles City	1021	1681		Providence (CO)	571	1007	1119	Galeana	1117	2386	
Macon	283	438	414	Missoula	1041	1667	1934	Providence	616	1127		Gambell	973	3005	
Rome	476	783		NEBRASKA				SOUTH CAROLINA				Juneau	616	1716	
Savannah	230	345	251	Grand Island											



## SEVERE STORMS

Table 4

NOVEMBER 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Tangier (northwest of Buck- ville), Ind.	2	Late af- ternoon					\$7,500		Electri- cal	Large barn and contents destroyed.
Chesapeake Bay area, Va.	3								Wind	Many small boats wrecked or sunk in area adjoining Lancaster and Northumberland Counties.
Harrison, Ark.	9	1 a.m.	*2	10			15,000		do	Struck north edge of City, demolishing screen of drive-in theater, damaging airplanes at Airport, destroying industrial smoke stack, and damaging some timber. Path of storm northeastward.
Cowlitz, Lewis, Thurston, and King Counties, Wash.	11	2-8 a.m.					5,000		do	High winds occurred over most of southwestern Wash- ington, with greatest damage centered in Cowlitz and King Counties. Power and communication lines damaged in several areas. 1 family narrowly es- caped being electrocuted, when high voltage line fell across car. Sign boards wrecked in several areas. Roofs damaged by falling trees.
Nicholas County, Ky.	14	P.m.					9,000	\$16,000	Electri- cal	3 barns, each filled with tobacco, hay, and farming implements, were destroyed by fire after being struck by lightning.
Prake (15 miles northwest of), Ariz.	14	Evening	200	**100	0	0	0	0	Tornado	Evidence of tornado passage. Principal damage con- fined very definitely to strip 200 yards wide and 400 yards long, with very few broken limbs and up- rooted trees outside of strip. Tornado struck in stand of juniper and pinon trees. Inside of area, devastation was complete; trees broken off, up- rooted, whipped to pieces, and scattered in all directions.
Newport Har- bor area, Calif.	14-16								Tornado, wind, and rain	Two roofs damaged severely on 15th by a small twist- er; also, paper roof on 1 building and paper and sheeting on another. Some tiles lifted from build- ings. Electric lines snapped, but no poles downed. 1 large lattice house and flower garden destroyed. Twister moved northeastward across peninsula, af- fecting area about 100 feet wide and 500 feet long. It hit east end of Lido Isle, damaging flowers; some trees uprooted in Bay Shores Tract. 1 auto twisted end for end on Highway 101 near bridge. Twister continued northeastward toward Irvine and El Toro Marine Base. Rain very heavy at time twist- er was crossing peninsula, and some observers re- ported it as a waterspout. Very heavy rain for about 15 minutes in Costa Mesa about 11 a.m. on 15th; lightning and thunder for about 1/2 hour.
San Joaquin Rancho, Easton, Orange Coun- ty, Calif.	11-15		*1	1/4 to 1			2,000		Wind	Roof of large warehouse blown off at Santa Fe rail- road tracks; windbreaks damaged, top limbs broken.
Santa Rita Ranch and Esperanza and Home ranch, Ariz.	15-16	Night					1,000		Wind and hail	Barn and sheds unroofed, power and telephone lines broken, large hay stack blown over, and many oak trees felled. Hailstones averaged 1/4 inch in diameter, with some reaching 3/8 inch. Major dam- age caused by winds.
Williamson, Pottawatomie Co., and Marshall Counties, Kans.	15	2:30-3:30 p.m.							Hail and electri- cal	Heavy hail in connection with severe electrical storms, with stones reported up to 3 to 4 inches in circumference. 2 Marshall County communities, one 12 miles east of Marysville and the other 10 miles south and east of Frankfort, reported broken win- dows, damaged roofs, and damaged automobiles.
Hopkins and Burlington Junction, Mo.	16	4-5:30 p.m.	600		0	2	1,300,000		Tornado, hail, and rain	Badly damaged numerous buildings in Burlington Junc- tion area at about 4:00 to 4:15 p.m.; damage esti- mated at \$50,000. Struck Hopkins about 5:15 p.m. where about one-half of the homes and commercial buildings destroyed or damaged. 2 persons injured here, and damage estimated at \$1,250,000.
Emmett (near), Pottawatomie County, Kans.	16	11:30 p.m.							Wind	Cattle shed and chicken house blown over, 5 miles northeast of Emmett. Barn east of Emmett moved from foundation.
Barton (18 miles west of), Brown County, Kans.	16-17	Midnight			0	0		0	Tornado	All buildings of farm unit, except house, destroyed or damaged.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

NOVEMBER 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Lansing, Mich.	17	A.m.					\$25,000		Electrical	Lightning struck 3 houses, destroying 2 and smashing television set at 3d.
Moscow (1½ miles south of), Iowa	17	3:20 p.m.	Narrow	Short	0	0			Tornado and rain	Small tornado unroofed barn and twisted it upon the foundation. Rain soaked 1,000 bales of hay stored in barn.
Polk and Scott Counties, Ark.	17	4:30 p.m.	100	40	0	2	25,000	\$1,000	Tornado	First struck at 4:30 p.m. at a point 10 miles west of Mena in Polk County; next reported at 4:55 p.m. about 5 miles south of Waldron in Scott County; last reported about 5 miles north of Pleasant Valley Community in Scott County. 2 barns destroyed, timber damaged, and hay destroyed in fields in Polk County. Damage in Scott County more extensive, including 12 houses damaged, one house destroyed, considerable damage to timber, and several farm animals killed. 2 persons injured when their home, located 5 miles south of Waldron, was destroyed.
Pennsylvania, central portion	17-18	Night			2	22	Hundreds		Fog	Heavy fog overnight blamed for series of highway accidents.
Barnes, Ransom, Sargent, La Moire, and Stutsman Counties, N. Dak.	17-18	Night					25,000		Sleet and freezing rain (ice)	Damage mostly to telephone lines, with some damage also to power lines. Bell Telephone Company estimated their damage to poles and lines near \$25,000. Phone company reported several hundred poles down and 150 long distance circuits out. REA power lines out for several hours in some areas.
South Dakota, central and north- central portions	17-18						15,000		Rain, snow, and wind	Most of snow melted as it fell or soon after. However, 6 to 11 inches accumulated for a short while in central and southwest which caused some traffic problems. Heavy, wet snow with winds of 30 to 50 m.p.h. in central and north-central counties damaged power and telephone lines. Northwestern Bell Telephone estimated 350 poles down and over 1,500 wire breaks. Some communities without telephone service for over 36 hours.
Angeon, Alaska	18						200		Wind	A heavy southeast wind with big swells and high tide caused minor damage.
Chichagof, Alaska	18								do	Gale-force winds and high tides with 5 foot breakers in Klag Bay. Seas over wharf and up on sidewalks. Structures washed away.
Sitka, Alaska	18								do	High winds to 72 m.p.h., with damage to roofs, airplanes, and light poles. Most stations in southeast reported gale force winds.
Granville County, N. C.	19	11:37 p.m.	50	**100	0	1	200,000		Tornado	Oak Hill Consolidated School, about 10 miles south of Virginia line, struck and several buildings, including main classroom building and teacherage, badly damaged. Teacher received minor cut on leg.
Cracked Creek, Alaska	20	Early morning							Wind	High southeast wind tore til from roofs of houses; blew boats and canoes around; broke tie-down ropes of 1 aircraft, damaging it.
Maryland and Delaware, entire section	20-21	A.m. and p.m.			3	15			Rain	2 men killed, and all of injured involved in automobile accidents occurring in blinding rain. 3d man drowned when car plunged into raging stream. Restaurant at Peace Cross, Bladensburg, burned to ground (\$100,000 damage), when fire hydrants were useless, due to being covered by flood waters. 1,000 telephones out of commission in Maryland. Trees snapped by winds; small craft torn loose from moorings in Bay and harbor. Some houses near Bay partly under water and others suffered damage, due to heavy rains. 19 head of cattle washed away. Roads damaged.
Parkersburg and vicinity, W. Va.	21	1:30-2:30 p.m.							Wind	Roofs damaged; plate-glass windows blown in; power lines and television antennae wrecked; trees blown down; a newly erected garage completely destroyed.
New Jersey, entire State	21	P.m.					20,000		Wind and rain	Minor damage to power and communications lines. Some flooding of basements. Minor traffic accidents.
Dauphin, Cumberland, and Franklin Counties, Pa.	21	Evening			6	13	Hundreds		do	Wind-swept rain and slippery roads resulted in deaths and injuries in highway accidents. In Mount Alto, creek waters flowed a foot deep for 2 hours through Center Square streets. Gusty winds damaged trees and television antennae in this 3-county area.

See footnotes at end of table.



## SEVERE STORMS

Table 4-Continued

NOVEMBER 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Philadelphia area, Pa.	21-22				1	6			Rains and winds	High winds up to 46 m.p.h. felled trees and utility lines, and did minor property damage. Heavy rains swelled streams; Perkiomen and Schuylkill overflowing their banks. Flooded highways blocked traffic in several sections. Near Collegeville 15 families forced from their homes by rising waters; 1 family removed by boats. Basements flooded in several sections. Delaware River, whipped by winds, overflowed at high tide, affecting waterfront warehouses. Death and injuries resulted from highway accidents during wind and rain squalls.
Chesapeake Bay and Hampton Roads areas, Va.	21								Wind and tide	Many fishing boats damaged, sunk, or driven ashore and plate-glass window broken in Northern Neck area. Extremely high tide caused some minor flooding in low sections of Norfolk.
Tennessee, eastern portion	21-22				2				Snow	An intense storm developed off South Carolina Coast on 21st and moved northwestward into Ohio, leaving central and northern portions of East Tennessee under a record-breaking blanket of snow. Heavy, wet snow began to fall over this section during morning of 21st, and before nightfall many locations had as much as a foot of snow on ground. Within a 24-hour period on 21st and 22 Knoxville experienced an 18.2-inch snowfall, which shattered previous local record of 15.1 inches. Very heavy amounts also recorded in northeast corner of State, with Bristol measuring 17.1 and Kingsport 17.0 inches. Contrasted to heavy fall in Knoxville-Bristol section, only a trace of snowcover was reported in Chattanooga-Kingston-Crossville-Monteagle section, while Nashville was enjoying sunny skies and mild temperatures. Extensive damage to power and communication facilities in area of heaviest fall; highway and rail transportation severely restricted for 3-day period. Thousands of homes without heat and lights for several days, with an estimated 30,000 dwellings in Knoxville alone affected. Moderate temperatures during snowstorm and a warming trend on 23d did much to minimize inconveniences caused by record snowfall. Much of snow melted as it fell, and a warm southerly wind on 25th erased all but a trace of snowcover. Property damage ranged into the hundreds of thousands of dollars.
Long Island, N. Y.	21-22								Wind	Winds, approximating 60 m.p.h., at times, felled trees and wires. Telephone and electric services disrupted in thousands of homes for varying periods of time. Some buildings damaged by falling trees.
Paradise Park (just north of Saint Helena), Napa County, Calif.	22				1				do	Death resulted when heavy limb brought down from height of 35 feet fell into midst of a picnic group.
Homer, Alaska	23-24								Rain	Near-flood conditions at Homer after 3.08 inches of rain fell in 24-hour period. Bridges and roads washed out.
Nebraska, southeast ern portion	24-25	Afternoon and night			10				Blizzard	All roads closed; some not opened before end of month. At least 10 persons lost their lives from exhaustion or heart failure, incidental to trying to reach shelter or from digging out stalled cars.
Minnesota, southern and eastern counties	21-27				6				Glaze (ice), sleet, snows, and wind	Traffic seriously delayed; some highways and roads blocked; many automobiles stalled and travelers stranded; a number of traffic accidents occurred; many rural schools closed by storm which assumed near-blizzard proportions in some localities. Deaths attributed indirectly to storm and cold that followed. Some damage to overhead wire systems in extreme southwestern and southeastern counties.
Kansas, western three- quarters of State	24-26				7	7 or more			Blizzard	Heavy snow and strong northwesterly winds of 40 to 50 m.p.h. beginning late on 24th in west and continuing until early on 26th in east closed virtually all roads in western three-fourths of State and across entire tier of extreme northern counties. Snow depths ranged generally from 5 to 10 inches. Heaviest falls of 10 to 15 inches in area from Harvey and Rice Counties northeastward to Marshall and Brown Counties. Drifts 5 to 6 feet deep were common. Highway traffic paralyzed 1 to 3 days and many secondary roads closed a week or more. Numerous power

See footnotes at end of table.



# SEVERE STORMS

Table 4—Continued

NOVEMBER 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Kansas, western three- quarters of State (Cont'd.)	24-26									line failures, and a total of 337 telephone toll line outages. Deaths, attributed to storm, resulted from exhaustion and asphyxiation. Numerous traffic accidents resulted in at least 7 injuries, serious enough to require hospitalization. Spotty reports indicate considerable loss of livestock from drifting and milling herds, but early warnings materially reduced losses.
Iowa, west- ern portion	24-26				6	Num- er- ous			Wind and snow	Heavy snows from Mills County to Worth County, with greatest fall of 17.1 inches at Bancroft. Wind speeds up to 50 m.p.h. Highways blocked and many motorists stranded. Bus traffic halted, trains delayed, and airplane flights cancelled. Rural schools generally closed in western counties. Of the 6 deaths, 4 were from overexertion, 1 from exposure, and 1 from an accident. Numerous highway accidents; 215 telephone circuits out; and electric power lines down in some localities. In north-central Iowa over 3,000 turkeys perished, with loss to growers of more than \$20,000.
Port Arthur, Tex.	25	7:45 a.m.		1			\$2,000		Wind	Line squall passed over area. Wind, estimated at 70 m.p.h. in one sector tapering off to 45 m.p.h. in north and south; bent TV antennae, upended a small garage, and damaged metal awnings.
Harrison, Ark.	25-26	1:30 p.m. - 11 a.m.					1,000		do	High, gusty winds did some damage to roofs.
St. Louis, Mo.	25-26	2 p.m., 25th- 6 a.m., 26th					10,000		do	Strong winds, exceeding 60 m.p.h. in gusts, did wide spread minor damage to roofs, windows, and power and telephone lines. Several automobiles damaged by falling trees or branches. Fastest mile of wind recorded at St. Louis Weather Bureau Office was 61 m.p.h. from south at 5:00 p.m. on 25th, and 59 m.p.h. from southwest at 3:12 a.m. on 26th.
South Bend and Mish- waka area, Ind.	25-26	P.m., 25th - a.m., 26th					30,000		do	Hangar building unroofed; damage to trees, roofs, etc.
Dunes Park, Gary, and Hobart areas, Ind.	25-26	P.m., 25th - a.m., 26th					50,000		do	Bill boards blown away. Bus stop stations overturned. Large barn blown down. Other buildings damaged, mostly roofs and chimneys.
Marion, Ky.	25				1	4			Electri- cal	Fatality and injuries caused by being struck by lightning.
South Dako- ta, eastern and south- ern por- tions	25-26								Wind and snow	Strong winds of 30 to 60 m.p.h. characterized this storm. Blizzard conditions existed in east and south with as much as 6 inches of new snow in extreme southeast. Highways temporarily blocked in Yankton-Sioux Falls-Sioux City, Iowa, sector. Elsewhere travel rather hazardous. Many schools in eastern South Dakota closed on 26th. Western two-thirds of State received less than 1 inch of snow.
Illinois, entire State	25-26				1	See re- marks	1,200,000		Wind	High winds caused by an intense cyclonic system, the center of which moved in north-northeasterly direction through Missouri and Iowa. Wind damage widespread, occurring in nearly all parts of State, but there were few reports of serious destruction in any one locality. Most damage to trees, communication and power lines, roofs, signs, windows, and television antennae. A radio transmitter antenna near Kankakee was toppled. As fall harvest was completed, there was no crop damage. 1 man reported to have been killed by falling tree in Logan County, and a number of persons suffered minor injuries in storm.
Detroit, Mich.	26					See re- marks			do	Winds of 70 m.p.h. in gusts broke many windows, blew down trees and utility poles, and wrecked antennas. Several persons injured by flying debris.
Grand Rapids, Mich.	26								do	High winds, attending a wind and snowstorm, caused considerable damage to power and telephone lines, overhead signs, awnings, antennas, plate-glass windows, and trees. Airline schedules interrupted.
Lansing, Mich.	26						2,000		do	Winds damaged signs, windows, and antennae. A tool shed collapsed; greenhouses particularly hard hit.
Ludington, Mich.	26						30,000		do	3 cottages and a seawall destroyed by pounding surf and high winds about 1 mile north of Ludington.

See footnotes at end of table.



## SEVERE STORMS

Table 4—Continued

NOVEMBER 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Grand Haven, Mich.	26								Wind	High winds and water action from Lake Michigan washed away parts of roads and cottages along Lake Michigan. Wind destroyed numerous signs, broke glass, and blew down antennae. Utility services interrupted by uprooted trees and poles which were snapped by near-hurricane-velocity winds.
Saginaw, Mich.	26								do	Winds reduced Saginaw River stage 4½ feet as result of southwest winds of 60 m.p.h. Shipping delayed.
Utica, Mich.	26								do	At airport a hangar blown down, damaging 5 planes. 6 airplanes on field tossed 200 yards.
Muskegon, Mich.	26-27						See remarks		do	Winds reaching 80 m.p.h. damaged lake shore property and many roofs. This type of damage extensive everywhere, ranging from a few torn shingles on most houses to a whole roof section at one factory. At Muskegon County Airport all buildings damaged, with repairs costing about \$1,500. Northside Airport lost a T hangar unit along with several airplanes. Antennae and trees blown down. Some interruption to utilities.
Wisconsin, entire State	26				4		\$100,000		Wind and snow	Westerly gales, with gusts in excess of 60 m.p.h. in some areas. Considerable minor property damage in State. In Milwaukee a concrete block wall 25 feet high and 100 feet long toppled. Due to breakage of ice-coated wires, telephone service badly disrupted in about a dozen northwestern counties. More than 100 long-distance circuits temporarily out of service. Snowfall up to 10 inches in northwestern Wisconsin was drifted severely by high winds. Side roads in that area temporarily impassable and traffic on main roads retarded by snow. 1 person drowned when his small boat was overturned by high waves. The other 3 deaths indirectly caused by bad weather.
Pennsylvania, central portion	29-30					30			Snow	1- to 3-inch snowfall produced icy roads, with at least 30 persons injured in skidding accidents on highways in this area.
LATE REPORT:										
Kansas, central portion	Aug. 7	5:30- 11:40 p.m.			3	0	568,100	\$25,000	Tornadoes, hail, wind, and electri- cal	Tornado 8 miles southwest of Attica in Harper County at 11:10 p.m.; funnel sighted and characteristic roar heard by 2 residents of area; (formerly called possible tornado). Severe wind (possible tornado) at home of cooperative observer 5 miles north of Preston, in Pratt County, about 9:15 p.m.; severe local damage to trees, wires, and roof of home. Also, severe wind (possible tornado) at home of cooperative observer 9 miles east of Zook, in southeastern Pawnee County, near 8 p.m.; damage locally severe to trees and wires. Damage of \$1,500 by these 2 possible tornadoes included in total. Heavy hail in northwestern Rice County about 6 p.m.; no estimate of damage.

\* Miles instead of yards.

\*\* Yards instead of miles.

Crop damage included with other property damage.



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

NOVEMBER 1952

There was no major flooding during November. The only flooding of any significance was in the Middle and North Atlantic states. The damages were insignificant. Record to near record low stages were reported at several points throughout the country.

**ATLANTIC SLOPE DRAINAGE.**—Heavy rains over the Middle and North Atlantic states from the 20th to the 22nd caused some flooding in the coastal streams from North Carolina to New York. Drought conditions had prevailed over the entire seaboard during October and the first part of November so the overflows from the heavy rain were not general or severe.

The precipitation in the Lackawaxen and Lehigh River Basins averaged 5.9 inches during the three day storm. Light flooding occurred on the Lehigh River at Leighton, Allentown and Bethlehem, Pa., on the 22nd and 23rd. Swollen creeks did considerable damage to the Allentown park system.

In the Schuylkill River Basin the precipitation averaged 5.5 inches. The heaviest amount reported was 8.04 inches at Tamaqua, Pa. The Schuylkill River and tributaries rose rapidly with light flooding resulting at and below Reading, Pa. The crest of 12.4 feet at Fairmount Dam was the highest during 1952. The stage of 13.0 feet at Graterford, Pa., on Perkiomen Creek was also the highest during the year. Very little damage was reported along the Schuylkill except for flooded basements. Some roads were closed for short periods.

The flow in the lower Delaware River Basin had been practically stopped before this storm. This caused considerable trouble for manufacturing firms along the banks who used water from the river in their business due to the increased salt content in the water in the tidal area near Trenton, N. J. The rainfall during the three day storm ranged from 3 to 6 inches and averaged 3.45 inches. No flooding, however, resulted along the main stem.

The rainfall over the Potomac-Rappahannock Basins during the 72 hour period averaged over 4 inches and was the heaviest over the Monocacy Basin (5.5 inches). Moderate flooding was reported on the Monocacy and light flooding in the headwaters of the Rappahannock on the 22nd; in the lower Potomac light flooding was reported from the 22nd to the 23rd. No damages were reported. The tides in the lower Potomac averaged 3.5 feet above normal on the 22nd and 23rd with a high tide stage of 6.6 feet on both days, which was within 0.4 foot of flood stage.

A general rise occurred in all the streams in eastern North Carolina from the heavy rains, which averaged 3 inches on the Roanoke, Dan, Neuse, and Cape Fear Basins and 2 inches on Fishing Creek and Tar River Basins. Flooding was general along the Neuse River. The only other flooding reported was on the Roanoke River at Williamston, N. C. and on the Cape Fear River at Fayetteville and Elizabethtown, N. C.

**EAST GULF OF MEXICO DRAINAGE.**—The Concoch River receded to a low stage of -0.8 foot at Brewton, Ala. on the 5-6th, which equalled the record low stage established at this point on September 4, 1951.

The Cahaba River reached a stage of 1.4 feet on the first of the month, which was the lowest November stage of record. The previous record low November stage was 1.6 feet in 1944. The all time lowest stage of record was 1.04 feet on October 7, 1935.

On the Alabama River, a record low November stage of 3.14 feet was reached on the 27th. The previous low November stage was 3.6 feet in November 1941. The lowest stage of record was 3.0 feet in 1941.

**Arkansas Basin.**—The Cimarron River at Perkins, Okla., averaged 2.7 feet, 2.1 feet below the mean monthly stage of 4.8 feet during November, which is the lowest mean monthly stage on record for November. The only lower mean monthly stage was 2.6 feet in October 1952.

The Arkansas River at Tulsa, Okla., and Van Buren, Ark., averaged 0.0 foot, 1.8 feet below normal and 3.2 feet, 4.3 feet below normal respectively.

**Lower Mississippi.**—The Mississippi River receded to a low stage of -2.33 feet at Vicksburg, Miss., on the 14th and 15th, which was the lowest stage at that point since January 1, 1944, when a stage of -2.5 feet was reached. Moderate rains during November brought an end to the drought which had lasted about five months. Streams were generally rising towards the end of the month.

**Columbia Basin.**—Due to the prolonged dry period, streams in the Columbia Basin have been at the lowest stages for so late in the fall and winter months, since 1936. There have been record low stages at a few stations. The low stages have in part been due to a change in the profile by the removal of control by dredging, the displacement of sand and gravel bars by dragging log rafts across them and the removal of sand and gravel from the river for commercial purposes.



# FLOOD STAGE DATA

(All dates in November unless otherwise specified)

Table 5

NOVEMBER 1952

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
	<i>Ft.</i>			<i>Ft.</i>	
ATLANTIC SLOPE DRAINAGE					
Lehigh:					
Bethlehem, Pa.	16	22	23	†16.2	22
Allentown, Pa.	14	22	23	16.5	22
Lehighton, Pa.	9	22	23	11.3	22
Perkiomen Creek: Graterford, Pa.	8	22	22	13.0	22
Schuylkill:					
Reading, Pa.	13	22	22	13.8	22
Pottstown, Pa.	14	22	23	14.1	23
Philadelphia, Pa.	11.5	22	22	12.4	22
Monocacy: Frederick (nr), Md.	15	22	22	17.7	22
Potomac: Washington (nr), D.C.	10	22	23	13.8	23
Rappahannock: Remington, Va.	15	22	22	17.4	22
Roanoke: Williamston, N.C.	10	26	28	10.0	27
Neuse:					
Neuse, N.C.	14	20	26	#19.2	24
Smithfield, N.C.	13	20	28	19.1	27
Goldsboro, N.C.	14	25	Dec. 1	#16.8	30
Kinston, N.C.	14	30	Dec. 4	#14.4	Dec. 3
Cape Fear:					
Fayetteville, N.C.	35	21	23	#37.0	22
Lock No. 2, Elizabethtown, N.C.	20	20	26	29.0	24
MISSISSIPPI SYSTEM Red Basin					
Ouachita: Arkadelphia, Ark.	17	26	26	18.9	26

\* Provisional.

† Estimated.

# Highest stages observed but not necessarily the crest.



# RADIOSONDE DATA

Average monthly values

NOVEMBER 1952

Table 20

ALBUQUERQUE, N. MEX. ( 838 MB.)				ATLANTA, GA. ( 984 MB.)				BIG SPRING, TEX. ( 928 MB.)				BISMARCK, N. DAK. ( 955 MB.)				BOISE, IDAHO ( 920 MB.)				BROWNSVILLE, TEX. (1017 MB.)				BUFFALO, N. Y. ( 990 MB.)				
Standard pressure surface (mb.)																												
Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				
Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				
Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				
Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				
SURFACE	30	1,629	5.4	51	30	309	10.5	61	27	784	11.1	54	26	505	0.6	63	30	868	0.8	66	30	7	18.8	83	30	221	5.8	77
1,000---	30	143			30	171			27	150			26	132			30	185			30	150	19.2	75	30	134		
950---	30	574			30	603	11.9	51	27	584			26	553	.8	59	30	609			30	598	17.0	73	30	558	5.4	69
900---	30	1,032			30	1,052	9.8	49	27	1,040	12.0	47	26	987	1.7	52	30	1,043	3.6	52	30	1,050	14.9	68	30	996	3.0	69
850---	30	1,502			30	1,525	8.3	45	27	1,515	9.7	43	26	1,445	-.8	52	30	1,506	2.7	44	30	1,533	13.1	61	30	1,457	-.2	69
800---	30	1,999	4.4	43	30	2,025	7.0	37	27	2,017	8.0	44	26	1,926	-3.4	51	30	1,994		44	30	2,042	12.2	51	30	1,941	-2.2	67
750---	30	2,529	1.5	44	30	2,561	4.9	33	26	2,552	5.2	44	26	2,440	-6.1	49	30	2,516	-2.8	43	30	2,591	10.3	43	30	2,458	-4.4	57
700---	30	3,074	1.6	46	30	3,133	2.4	28	26	3,109	1.9	39	26	2,971	-9.2	50	30	3,053	-5.3	38	30	3,153	7.3	40	30	2,992	-6.8	50
650---	30	3,660	-5.4	42	30	3,714	-.8	30	26	3,706	-1.8	36	26	3,550	-12.1	44	30	3,637	-8.5		30	3,766	3.6	39	30	3,575	-9.4	48
600---	30	4,284	-8.9	36	30	4,343	-.4	28	26	4,335	-5.4		26	4,145	-15.8	41	30	4,248	-11.7		30	4,404	-.2		29	4,181	-12.9	43
550---	30	4,952	-13.3	35	30	5,026	-9.2	34	26	5,016	-9.8		26	4,802	-19.8		29	4,916	-15.6		30	5,101	-4.1		29	4,842	-16.9	40
500---	30	5,670	-18.3	33	30	5,753	-13.9	37	26	5,741	-14.7		26	5,502	-24.3	38	29	5,624	-20.4		30	5,841	-9.0		29	5,548	-21.6	41
450---	30	6,453	-24.0		30	6,551	-19.1	42	26	6,534	-20.2		26	6,264	-29.4	37	29	6,400	-26.1	38	30	6,662	-14.5		29	6,320	-26.8	43
400---	30	7,299	-30.4		30	7,411	-25.6	44	26	7,394	-26.2		26	7,092	-35.4		29	7,238	-32.5	40	30	7,532	-20.8		29	7,158	-32.6	
350---	30	8,236	-36.6		30	8,366	-32.5	42	26	8,346	-32.9		26	8,008	-42.1		29	8,164	-39.6		30	8,504	-28.2		29	8,087	-38.9	
300---	30	9,287	-43.6		30	9,435	-40.3		26	9,412	-40.9		26	9,036	-48.7		29	9,206	-47.3		30	9,591	-36.7		29	9,129	-45.4	
250---	30	10,494	-50.3		30	10,656	-48.8		25	10,632	-49.0		26	10,221	-52.7		28	10,391	-54.3		28	10,824	-44.3		28	10,322	-51.7	
200---	29	11,928	-54.8		30	12,096	-56.3		25	12,069	-57.0		26	11,655	-53.6		28	11,808	-57.5		27	12,266	-57.3		28	11,756	-55.2	
175---	29	12,778	-57.2		30	12,936	-59.5		25	12,907	-60.0		26	12,512	-54.2		28	12,651	-56.9		27	13,098	-62.9		28	12,607	-55.4	
150---	28	13,739	-59.5		30	13,893	-62.5		25	13,862	-62.7		26	13,497	-55.3		28	13,627	-57.3		27	14,035	-67.5		24	13,587	-56.4	
125---	27	14,872	-62.0		30	15,008	-65.6		24	14,983	-65.4		26	14,654	-56.9		28	14,774	-58.9		25	15,121	-70.5		21	14,728	-57.6	
100---	25	16,239	-64.2		30	16,357	-67.2		22	16,332	-66.8		24	16,062	-58.5		27	16,168	-60.3		23	16,432	-72.2		11	16,162	-59.8	
80---	21	17,605	-64.0		23	17,702	-66.2		18	17,684	-67.5		23	17,460	-58.9		27	17,558	-60.2		18	17,740	-70.6		7	17,556	-60.5	
60---	18	19,370	-62.7		21	19,457	-64.0		15	19,428	-65.2		20	19,262	-59.1		35	19,349	-60.2		15	19,459	-64.5		5	19,366	-59.7	
50---	15	20,474	-61.6		18	20,576	-62.4		13	20,547	-62.9		17	20,409	-59.0		23	20,491	-60.1		14	20,581	-61.8		5	20,504	-59.5	
40---	9	21,873	-60.0		16	21,953	-60.2		10	21,930	-60.0		7	21,816	-58.1		19	21,891	-59.2		13	21,970	-58.2					
30---					11	23,774	-57.1									10	23,710	-57.7		9	23,790	-53.0						

BURRWOOD, LA. (1019 MB.)				CARIBOU, MAINE ( 995 MB.)				CHARLESTON, S. C. (1018 MB.)				COLUMBIA, MO. ( 989 MB.)				DODGE CITY, KANS. ( 927 MB.)				EL PASO, TEX. ( 882 MB.)				ELY, NEV. ( 809 MB.)				
Standard pressure surface (mb.)																												
Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				
Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				
Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				
Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				
SURFACE	30	3	16.8	84	30	191	-1.5	80	30	13	11.3	88	30	238	6.8	58	30	792	4.4	56	30	1,195	10.0	45	30	1,908	-2.8	55
1,000---	30	165	16.8	74	30	149			30	164	15.6	68	30	147	7.1	53	30	159			30	130			30	178		
950---	30	602	14.2	66	30	563	-.7	70	30	1,603	13.5	57	30	576	7.1	53	30	583			30	565			30	607		
900---	30	1,056	12.3	55	30	990	-1.6	63	30	1,052	11.0	53	30	1,014	4.5	53	30	1,023			30	1,023			30	1,044		
850---	29	1,534	11.0	45	30	1,444	-2.8	63	30	1,527	8.9	45	30	1,478	2.9	50	29	1,496	4.6	44	30	1,504	10.8	40	30	1,507		
800---	28	2,038	9.4	36	30	1,922	-4.3	57	30	2,027	7.3	39	30	1,967	1.3	45	29	1,988	2.4	43	30	2,006	7.9	42	30	1,995	9.7	47
750---	28	2,578	7.3		30	2,436	-6.2	51	30	2,564	5.0	37	30	2,492	-.7	43	29	2,511	-.1	43	30	2,538	5.1	40	30	2,517	-.6	45
700---	28	3,136	4.8		30	2,966	-8.7	49	30	3,116	2.6	28	30	3,034	-3.3	42	29	3,058	-2.4	41	30	3,095	1.7	40	30	3,060	-3.8	40
650---	28	3,742	1.7		30	3,545	-11.5	48	30	3,715	-1.1	30	30	3,625	-6.4	38	29	3,645	-5.8	41	30	3,691	-2.0	41	30	3,647	-6.9	37
600---	27	4,378	-2.0		30	4,146	-15.3	49	30	4,345	-5.0	34	30	4,239	-9.8	38	29	4,264	-9.6	40	30	4,321	-5.9	36	30	4,262	-10.6	
550---	27	5,064	-6.5		30	4,803	-19.3	48	30	5,027	-9.4	32	30	4,914	-14.2	35	29	4,933	-14.1	37	30	4,996	-10.3		29	4,924	-14.5	
500---	27	5,802	-11.2		30	5,500	-23.7	46	30	5,743	-14.4	36	30	5,648	-18.7	37	29	5,668	-18.7	37	30	5,584	-15.8		29	5,442	-19.4	
450---	27	6,611	-17.1		30	6,267	-28.8	45	30	6,549	-20.0	41	30	6,404	-24.7	33	29	6,430	-24.1	37	30	6,518	-20.8		30	6,418	-25.2	
400---	27	7,477	-23.1		29	7,094	-34.5		30	7,407	-26.1	42	30	7,244	-30.8	35	29	7,273	-30.6	38	30	7,373	-26.6		30	7,260	-31.7	
350---	27	8,440	-30.0		29	8,014	-40.5		30	8,359	-33.0	38	30	8,178	-37.5		28	8,204	-37.4		30	8,323	-33.0		30	8,189	-38.9	
300---	25	9,517	-38.3		28	9,059	-47.0		30	9,425	-41.0		30	9,225	-44.3		28	9,253	-44.1		30	9,391	-40.3		30	9,228	-46.6	
250---	25	10,743	-47.6		27	10,247	-52.0		30	10,641	-49.6		30	10,427	-51.4		28	10,457	-50.8		27	10,609	-47.8		29	10,408	-52.9	
200---	25	12,181	-57.8		27	11,682	-53.9		30	12,074	-57.5		30	11,859	-55.6		28	11,897	-54.6		27	12,056	-55.3		28	11,832	-55.8	
175---	25	13,012	-62.8		27	12,537	-54.3		30	12,911	-60.9		30	12,707	-56.8		28	12,748	-55.9		27	12,901	-58.6		27	12,656	-56.4	
150---	25	15,949	-67.3		26	15,519	-55.1		30	16,000	-63.7		30	15,787	-60.7		28	15,828	-60.1		27	16,022	-67.3		27	15,760	-57.5	
125---	22	15,032	-70.1		25	14,668	-56.6		27	14,976	-66.6		30	14,815	-60.9		26	14,872	-59.9		27	14,977	-65.3		23	14,793	-59.0	
100---	16	16,352	-70.3		24	16,082	-58.2		21	16,326	-67.1		28	16,195	-61.9		24	16,257	-61.8		27	16,325	-67.3		23	16,184	-60.6	
80---	12	17,680	-68.5		22	17,491	-58.8		20	17,672	-66.8		25	17,572	-62.2		27	17,630	-61.8		23	17,681	-67.5		22	17,567	-61.2	
60---	11	19,415	-63.9		17	19,285	-58.4																					



## Average monthly values

NOVEMBER 1952

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.



# RADIOSONDE DATA

Average monthly values

Table 20--Continued

NOVEMBER 1952

SAN ANTONIO, TEX. (990 MB.)				SAN JUAN, P. R. (1011 MB.)				SANTA MARIA, CALIF. (1008 MB.)				S. STE. MARIE, MICH. (988 MB.)				SPOKANE, WASH. (936 MB.)				SWAN ISLAND, W. I. (1013 MB.)				TACUBAYA, MEXICO (753 MB.)				
Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				
Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				
Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				
Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				
Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				
URFACE	30	243	14.4	69	30	19	24.6	84	30	71	10.2	82	30	221	1.3	86	30	722	1.1	78	30	10	26.0	80	29	2,306	15.4	65
1,000--	30	159			30	120	24.7	81	30	141	12.4	75	30	118			30	188			30	120	25.9	78	29	64		
500--	30	596	14.4	63	30	576	22.1	82	30	574	12.6	56	30	538	1.1	77	30	607			30	576	22.7	80	29	525		
300--	30	1,050	12.9	64	30	1,038	18.7	83	30	1,024	10.4	49	30	967	-1.0	76	30	1,041	1.8	66	30	1,041	19.5	79	29	1,004		
200--	30	1,529	11.2	61	30	1,528	15.7	82	30	1,498	8.0	42	30	1,421	-2.8	71	30	1,500	-1.3	62	30	1,532	16.3	76	29	1,495		
150--	30	2,034	9.6	50	30	2,041	13.2	72	30	1,995	5.3	36	30	1,900	-4.8	66	30	1,983	-2.2	57	30	2,046	13.8	66	29	2,021		
100--	30	2,576	7.9	41	30	2,591	10.8	60	30	2,526	2.3	32	30	2,410	-6.7	60	30	2,498	-4.4	51	30	2,596	11.9	48	29	2,575	14.8	59
50--	30	3,134	4.9	37	30	3,156	8.4	45	30	3,074	-1.5		30	2,943	-9.2	59	30	3,035	-6.6	49	30	3,163	9.0	39	29	3,151	10.8	61
0--	30	3,735	1.3	37	30	3,774	5.2	39	30	3,666	-4.2		30	3,517	-12.2	56	30	3,617	-9.4	48	30	3,779	5.9	38	29	3,772	6.2	65
50--	29	4,374	-2.6	34	30	4,414	1.7	32	30	4,289	-8.2		30	4,121	-15.3	55	30	4,226	-12.8	44	30	4,425	2.2	34	29	4,416	1.4	69
50--	29	5,060	-6.6		30	5,112	-2.0		30	4,960	-12.9		30	4,777	-19.1	52	30	4,888	-16.9	43	30	5,124	-1.6	29	29	5,120	-2.2	55
50--	29	5,798	-11.2		30	5,861	-6.9		30	5,678	-18.3		30	5,477	-23.4	49	30	5,593	-21.8	42	30	5,876	-6.2		29	5,865	-6.2	
50--	29	6,606	-16.6		30	6,686	-12.6		30	6,463	-24.4		30	6,242	-28.8	46	30	6,366	-27.3	46	30	6,699	-11.5		29	6,692	-11.3	
50--	29	7,474	-22.6		30	7,563	-19.2		30	7,303	-30.6		30	7,075	-34.5	44	30	7,198	-33.4	46	30	7,585	-17.8		28	7,576	-17.4	
50--	29	8,439	-29.6		30	8,541	-26.4		30	8,237	-37.4		30	7,994	-41.1		30	8,121	-40.4		30	8,569	-25.1		28	8,562	-24.6	
50--	29	9,518	-37.9		30	9,638	-34.3		30	9,283	-45.0		29	9,035	-47.2		30	9,154	-47.9		30	9,668	-33.6		25	9,667	-33.1	
50--	28	10,748	-47.2		30	10,887	-43.8		30	10,483	-50.7		29	10,227	-51.6		29	10,339	-54.5		30	10,919	-43.5		24	10,923	-43.2	
50--	28	12,192	-56.8		30	12,350	-55.2		30	11,921	-54.5		28	11,655	-53.4		29	11,752	-58.1		29	12,382	-54.9		23	12,385	-55.4	
75--	28	13,028	-61.3		30	13,190	-61.5		30	12,772	-56.3		28	12,514	-52.7		29	12,595	-57.1		28	13,222	-61.3		19	13,229	-61.8	
50--	28	13,974	-65.4		30	14,131	-67.8		27	13,763	-59.7		27	13,499	-54.3		29	13,570	-57.0		28	14,162	-67.3		18	14,169	-68.2	
50--	27	15,074	-68.2		29	15,210	-70.3		27	14,893	-62.6		27	14,664	-56.1		27	14,712	-57.7		27	15,238	-73.9		16	15,248	-73.1	
50--	23	16,403	-70.3		25	16,513	-76.1		25	16,263	-64.3		26	16,080	-57.0		27	16,115	-58.8		23	16,524	-77.0		8	16,566	-75.3	
50--	18	17,740	-70.0		25	17,804	-73.8		24	17,624	-63.4		26	17,485	-58.3		24	17,521	-58.8		16	17,812	-76.1		5	17,862	-75.9	
50--	13	19,464	-66.3		24	19,515	-66.9		23	19,285	-62.2		21	19,285	-58.4		20	19,328	-59.5		14	19,505	-68.0		5	19,550	-68.5	
50--	11	20,582	-62.9		19	20,621	-64.1		20	20,516	-61.1		13	20,432	-58.1		15	20,487	-59.5		13	20,608	-65.1		5	20,653	-64.4	
50--	10	21,957	-60.2		19	22,004	-59.2		14	21,915	-59.1		11	21,826	-57.2		9	21,894	-59.2		13	21,976	-61.7		5	22,027	-61.1	
50--	10				16	23,832	-53.3		8	23,750	-56.7		5	23,655	-57.8						13	23,779	-56.6					
50--	5				5	26,437	-49.0														10	26,391	-49.7					
50--	5																				9	28,289	-47.0					

TAMPA, FLA. (1018 MB.)				TATOOSH ISLAND, WASH. (1015 MB.)				VERACRUZ, MEXICO (1013 MB.)				WASHINGTON, D. C. (1009 MB.)				1/ CAMAGUEY, CUBA (1003 MB.)				2/ CAMAGUEY, CUBA (1002 MB.)				3/ CAMAGUEY, CUBA (1002 MB.)			
Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)				Standard pressure surface (mb.)			
Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations			
Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height				Dynamic height			
Temperature				Temperature				Temperature				Temperature				Temperature				Temperature				Temperature			
Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity				Relative humidity			
SURFACE	30	9	17.2	81	30	31	8.2	81	20	13	24.3	79	30	88	8.0	72	13	122	23.6	7	122	24.0	27	122	24.1	92	
1,000--	30	164	19.2	70	30	151	8.2	76	20	126	23.6	79	30	162	9.5	68	13	148	23.7	7	143	24.0	27	143	24.3	91	
500--	30	602	16.9	69	30	579	6.9	67	20	579	20.7	79	30	593	8.5	63	13	600	23.4	7	597	23.3	27	597	24.2	76	
300--	30	1,016	14.7	67	30	1,011	4.8	63	20	1,029	18.0	78	30	1,032	6.1	61	13	1,071	21.4	7	1,065	21.4	27	1,067	22.2	67	
200--	30	1,444	11.7	60	30	1,481	3.3	52	20	1,529	15.7	76	30	1,500	9.9	57	13	1,565	18.6	7	1,559	18.1	27	1,562	18.9	67	
150--	30	2,050	10.6	41	30	1,971	.9	50	20	2,042	13.4	69	30	1,991	2.2	48	13	2,083	15.5	7	2,077	15.3	27	2,080	15.5	66	
100--	30	2,593	8.9		30	2,492	-1.9	49	20	2,594	11.3	63	30	2,518	.2	45	13	2,628	12.2	7	2,626	12.5	27	2,628	12.2	61	
50--	30	3,154	6.3		30	3,033	-4.9	48	20	3,158	8.4	64	30	3,061	-1.9	38	13	3,203	8.7	7	3,199	9.2	27	3,201	8.9	57	
0--	30	3,765	3.4		30	3,616	-8.6	46	19	3,776	5.1	61	30	3,652	-5.2	40	13	3,815	4.8	7	3,814	6.6	27	3,814	5.0	57	
50--	30	4,403	-2.2		30	4,228	-12.3	41	18	4,417	1.5		30	4,272	-8.7	40	13	4,461	-7	7	4,462	-1.9	26	4,460	.8	56	
50--	29	5,094	-4.8		30	4,892	-16.5	38	17	5,115	-2.0		30	4,944	-12.7	35	13	5,159	-3.2	7	5,164	-2.9	26	5,155	-3.2	52	
50--	29	5,836	-9.5		30	5,597	-21.6	38	16	5,863	-6.1		30	5,661	-17.5		13	5,904	-7.1	7	5,907	-7.7	25	5,902	-7.7	54	
50--	29	6,653	-15.2		29	6,366	-27.2	38	16	6,693	-11.0		30	6,449	-22.8	37	13	6,743	-12.3	7	6,727	-12.7	24	6,721	-12.7	51	
50--	29	7,521	-21.6		29	7,199	-33.3		16	7,598	-17.1		30	7,295	-28.6	40	13	7,610	-18.1	7	7,609	-18.5	23	7,605	-18.3	49	
50--	29	8,490	-28.6		29	8,122	-40.6		14	8,564	-24.5		30	8,237	-35.4	40	13	8,594	-24.8	7	8,592	-25.4	21	8,589	-25.0		
50--	29	9,574	-36.8		29	9,153	-48.2		13	9,671	-32.7		30	9,292	-42.8		13	9,697	-33.1	7	9,690	-33.6	19	9,690	-33.4		
50--	29	10,809	-46.3		28	10,333	-55.4		12	10,926	-42.5		30	10,496	-51.0		13	10,955	-43.0	6	10,945	-43.4	16	10,944	-43.4		
50--	29	12,256	-56.8		28	11,735	-58.8		12	12,394	-54.8		29	11,919	-56.9		13	12,421	-55.0	6	12,412	-54.3	10	12,413	-55.0		
50--	17	13,091	-61.7		28	12,574	-57.7		12	13,235	-61.6		29	12,761	-57.8		13	13,261	-61.4	5	13,267	-60.4	8	13,264	-61.4		
50--	15	14,039	-66.0		28	13,546	-57.9		12	14,174	-68.5		28	13,730	-59.5		12	14,203	-67.5	5	14,216	-65.3	8	14,187	-66.4		
50--	12	15,129	-69.3		27	14,689	-58.8		11	15,254	-74.5		28	14,863	-61.8		11	15,290	-70.8	5	15,316	-69.3	7	15,280	-69.0		
50--	10	16,449	-71.5		23	16,091	-59.9		9	16,528	-76.8		25	16,233	-63.0		9	16,605	-71.4	5	16,637	-70.5	5	16,599	-71.1		
50--	8	17,758	-70.5																								

TAMPA, FLA. (1018 MB.)				TATOOSH ISLAND, WASH. (1015 MB.)				VERACRUZ, MEXICO (1013 MB.)				WASHINGTON, D. C. (1009 MB.)				1/ CAMAGUEY, CUBA (1003 MB.)				2/ CAMAGUEY, CUBA (1002 MB.)				3/ CAMAGUEY, CUBA (1002 MB.)			
SURFACE	30	9	17.2	81	30	31	8.2	81	20	13	24.3	79	30	88	8.0	72	13	122	23.6	7	122	24.0	27	122	24.1	92	
1,000--	30	164	19.2	70	30	151	8.2	76	20	126	23.6	79	30	162	9.5	68	13	148	23.7	7	143	24.0	27	143	24.3	91	
500--	30	602	16.9	69	30	579	6.9	67	20	579	20.7	79	30	593	8.5	63	13	600	23.4	7	597	23.3	27	597	24.2	76	
300--	30	1,063	14.2	67	30	1,016	4.8	63	20	1,040	18.0	78	30	1,033	6.2	61	13	1,071	21.4	7	1,065	21.4	27	1,067	22.2	67	
200--	30	1,544	11.7	60	30	1,481	3.3	52	20	1,529	15.7	76	30	1,500	3.9	57	13	1,565	18.6	7	1,559	18.1	27	1,562	18.9	67	
150--	30	2,050	10.6	41	30	1,971	1.9	50	20	2,042	13.4	69	30	1,991	2.2	48	13	2,083	15.5	7	2,077	15.3	27	2,080	15.5	66	
100--	30	2,593	8.9		30	2,492	-1.9	49	20	2,594	11.3	63	30	2,518	-2.45	13	13	2,628	12.7	7	2,626	12.5	27	2,628	12.2	61	
50--	30	3,154	6.3		30	3,033	-4.9	48	20	3,158	8.4	64	30	3,061	-1.9	38	13	3,203	8.7	7	3,199	8.2	27	3,201	8.9	57	
0--	30	3,765	2.4		30	3,616	-8.6	46	19	3,776	5.1	61	30	3,652	-5.2	40	13	3,815	4.8	7	3,814	6.6	27	3,814	5.0	57	
500--	30	4,403	-2		30	4,228	-12.3	41	18	4,417	1.5		30	4,272	-8.7	40	13	4,461	7.7	7	4,462	1.9	26	4,460	-8.56		
550--	29	5,094	-4.8		30	4,892	-16.5	38	17	5,115	-2.0		30	4,944	-12.7	35	13	5,159	-3.2	7	5,164	-2.9	26	5,155	-3.2	52	
500--	29	5,836	-9.5		30	5,597	-21.6	38	16	5,863	-6.1		30	5,661	-17.5		13	5,904	-7.1	7	5,907	-7.7	25	5,902	-7.7	54	
450--	29	6,653	-15.2		29	6,366	-27.2	38	16	6,693	-11.0		30	6,449	-22.8	37	13	6,723	-12.3	7	6,727	-12.7	24	6,721	-12.7	51	
400--	29	7,521	-21.6		29	7,199	-33.3		16	7,578	-17.1		30	7,295	-28.6	40	13	7,610	-18.1	7	7,609	-18.5	23	7,605	-18.3	49	
350--	29	8,490	-28.6		29	8,122	-40.6		14	8,564	-24.5		30	8,237	-35.4	40	13	8,594	-24.8	7	8,592	-25.4	21	8,589	-25.0		
300--	29	9,574	-36.8		29	9,153	-48.2		13	9,671	-32.7		30	9,292	-42.8		13	9,697	-33.1	7	9,690	-33.6	19	9,690	-33.4		
250--	29	10,809	-46.3		29	10,333	-55.4		12	10,926	-42.5		30	10,496	-51.0		13	10,955	-43.0	6	10,945	-43.4	16	10,944	-43.4		
200--	29	12,256	-56.8		28	11,735	-58.8		12	12,394	-54.8		29	11,919	-56.9		13	12,421	-55.0	6	12,412	-54.3	10	12,413	-55.0		
175--	29	13,091	-61.7		28	12,574	-57.7		12	13,235	-61.7		29	12,761	-57.8		13	13,261	-61.4	5	13,267	-60.4	8	13,244	-61.4		
150--	29	14,034	-66.0		28	13,474	-68.5		12	14,174	-68.5		28	13,730	-59.2		12	14,203	-67.5	5	14,216	-65.3	8	14,187	-66.4		
125--	29	15,129	-69.3		27	14,689	-58.8		11	15,254	-74.5		28	14,863	-61.8		11	15,290	-70.8	5	15,316	-69.3	5	15,280	-69.0		
100--	28	16,449	-71.5		23	16,091	-59.9		9	16,528	-76.8		25	16,233	-63.0		9	16,605	-71.4	5	16,637	-70.5	5	16,599	-71.1		
80--	24	17,758	-70.5		21	17,481	-59.4		6	17,811	-75.6		24	17,603	-63.3		7	17,933	-68.1				5	17,922	-69.6		
60--	20	19,484	-65.9		15	19,275	-59.7		5	19,500	-67.1		17	19,373	-62.9		6	19,681	-69.3				5	19,660	-63.8		
50--	18	20,605	-62.6		11	20,434	-60.0		5	20,607	-64.1		16	20,501	-61.6		5	20,814	-59.7								
40--	17	21,992	-59.2		5	21,832	-59.0						12	21,891	-60.5												
30--	8	23,821	-56.6										8	23,667	-59.8												
20--													5	26,168	-58.5												

4/ CAMAGUEY, CUBA (1001 MB.)				5/ HAVANA, CUBA (1010 MB.)				6/ HAVANA, CUBA (1012 MB.)				7/ HAVANA, CUBA (1011 MB.)				1/ June 1952. 2/ July 1952. 3/ August 1952. 4/ September 1952.				5/ June 1952. 6/ July 1952. 7/ August 1952.					
SURFACE	26	122	23.8	95	23	49	25.0	88	10	49	25.5		31	49	25.7	85									
1,000--	26	126	23.9	94	23	53	135	81	10	157	25.7		31	142	26.5	81									
500--	26	585	24.1	81	23	592	24.0	72	10	613	23.4		31	602	24.4	74									
900--	26	1,051	21.4	79	23	1,060	21.1	72	10	1,082	21.7		31	1,068	21.7	66									
850--	26	1,546	18.6	75	23	1,554	17.9	72	10	1,576	18.8		31	1,562	18.5	65									
800--	26	2,064	15.6	72	23	2,070	14.6	70	10	2,094	15.6		31	2,080	15.2	66									
750--	26	2,610	12.3	70	23	2,618	11.8	58	10	2,645	12.3		31	2,629	11.9	64									
700--	26	3,186	9.3	61	23	3,189	8.4	58	10	3,215	8.7		31	3,200	8.6	61									
650--	26	3,802	5.7	57	23	3,802	4.8	54	10	3,826	4.9		31	3,817	5.0	60									
600--	26	4,448	1.8	55	23	4,447	1.3	45	10	4,473	1.9		31	4,459	1.1	58									
550--	26	5,151	-2.0	50	23	5,149	-2.7	43	10	5,173	-3.3		30	5,162	-3.0	55									
500--	26	5,852	-6.2	48	23	5,849	-7.0	38	10	5,873	-7.7		30	5,864	-7.9	53									
450--	25	6,719	-11.1	45	22	6,717	-12.1		10	6,734	-13.2		30	6,727	-11.9	47									
400--	23	7,610	-16.4	43	22	7,599	-18.1		10	7,614	-19.4		30	7,611	-17.9	45									
350--	22	8,600	-23.4		22	8,582	-25.2		10	8,592	-27.0		30	8,595	-24.9	43									
300--	21	9,712	-31.6		21	9,685	-33.7		10	9,684	-35.4		30	9,697	-33.3	42									
250--	20	10,975	-41.6		21	10,936	-43.9		10	10,926	-45.7		30	10,951	-43.4										
200--	18	12,452	-53.5		21	12,396	-55.7		10	12,377	-56.9		29	12,413	-55.6										
175--	17	13,294	-60.1		21	13,233	-62.0		10	13,212	-61.7		29	13,250	-62.0										
150--	16	14,240	-66.9		20	14,173	-67.7		10	14,156	-66.1		28	14,193	-67.4										
125--	14	15,320	-71.7		20	15,257	-72.2		10	15,250	-69.0		26	15,280	-70.9										
100--	12	16,622	-72.8		19	16,569	-73.1		10	16,578	-69.5		25	16,600	-70.1										
80--	8	17,943	-69.6		17	17,937	-67.6		8	17,917	-65.3		23	17,938	-66.6										
60--	6	19,670	-63.9		15	19,648	-60.9		7	19,695	-59.6		20	19,705	-60.8										
50--	5	20,792	-60.9		15	20,791	-57.1		7	20,842	-57.0		20	20,843	-58.3										
40--	5	22,187	-58.7		14	22,203	-54.5		6	22,245	-56.1		15	22,253	-56.3										
30--	5	24,000	-56.8		7	24,077	-49.2		6	24,088	-51.0		12	24,100	-52.3										

Note: All observations scheduled at 0300, G.C.T., except at Mazatlan, Meridia and Veracruz, where they are taken near 0200, G.C.T.. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 10 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.



# PILOT BALLOON DATA

Average monthly resultant winds

NOVEMBER 1952

Table 21

Altitude (meters) m s l	Abilene, Tex. (531 m.)		Albuquerque, N. Mex. (1,627 m.)		Billings, Mont. (1,095 m.)		Bismarck, N. Dak. (505 m.)		Boise, Idaho (868 m.)		Brownsville, Tex. (7 m.)		Buffalo, N.Y. (220 m.)		Burlington, Vt. (100 m.)		Charleston, S.C. (16 m.)		Cincinnati, Ohio (273 m.)		El Paso, Tex. (1,198 m.)		Ely, Nev. (1,910 m.)																
	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction															
																									Speed	Speed	Speed	Speed	Speed	Speed	Speed	Speed	Speed	Speed	Speed	Speed	Speed	Speed	Speed
SURFACE-----	28	232	1.1	30	97	0.7	30	263	4.1	28	296	4.2	30	296	1.6	25	119	3.3	22	235	4.3	27	206	1.4	29	171	1.2	27	238	2.8	29	228	0.9	30	358	1.5			
500-----	27	207	2.8	--	--	--	--	--	--	--	--	--	24	132	5.4	22	244	5.9	27	209	4.0	27	176	9	27	237	3.9	--	--	--	--	--	--	--	--				
1,000-----	26	235	3.6	--	--	--	30	273	6.8	22	292	7.0	30	280	8	13	264	1.9	17	253	10.4	14	232	5.3	23	284	4.5	21	255	7.9	29	216	1.0	--	--	--			
1,500-----	23	256	5.7	30	145	9	29	292	7.7	21	295	7.6	30	318	1.0	--	--	--	--	--	--	10	256	7.6	20	285	7.6	20	264	10.0	29	239	2.4	30	347	1.3			
2,000-----	20	252	7.9	38	244	2.9	26	288	7.3	19	293	8.8	30	309	1.9	--	--	--	--	--	--	11	270	9.2	10	264	8.9	20	287	8.2	18	267	11.3	26	245	6.2	30	338	1.0
2,500-----	20	260	8.0	23	268	5.0	24	297	8.6	19	282	9.5	27	330	2.9	--	--	--	--	--	--	17	284	12.2	13	289	16.4	23	264	12.3	29	311	4.0	--	--	--			
3,000-----	20	263	10.1	22	268	8.9	20	299	11.7	19	283	12.8	27	332	4.9	--	--	--	--	--	--	17	284	15.4	11	284	18.5	21	264	14.2	23	288	5.2	--	--	--			
4,000-----	14	283	12.3	22	266	10.4	15	304	10.3	15	292	16.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
5,000-----	13	281	12.9	--	--	--	14	310	9.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
6,000-----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
8,000-----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
10,000-----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
12,000-----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		

Altitude (meters) m s l	Grand Junction, Colo. (1,475 m.)		Greensboro, N.C. (271 m.)		Havre, Mont. (767 m.)		Jacksonville, Fla. (16 m.)		Joliet, Ill. (178 m.)		Little Rock, Ark. (88 m.)		Medford, Ore. (416 m.)		Miami, Fla. (12 m.)		Mobile, Ala. (66 m.)		Nashville, Tenn. (182 m.)		Oakland, Calif. (8 m.)		Oklahoma City, Okla. (396 m.)														
	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction													
SURFACE-----	30	291	1.0	28	238	1.3	29	272	3.4	29	60	2.6	29	254	3.3	28	232	1.4	26	302	0.4	30	58	3.6	28	37	1.2	28	264	1.3	30	264	1.2	26	241	1.4	
500-----	--	--	--	28	226	2.5	--	--	--	29	104	7	29	257	5.3	28	253	2.3	26	250	3	30	60	4.6	28	42	1.5	28	230	2.3	30	358	1.1	26	232	1.5	
1,000-----	--	--	--	27	236	4.1	29	271	6.1	28	214	1.7	27	263	6.1	26	258	3.6	26	144	2.0	30	54	3.6	28	355	2.1	25	241	4.1	29	38	1.2	23	222	2.7	
1,500-----	30	287	1.0	26	256	6.0	27	283	7.1	25	263	1.4	26	270	7.9	21	287	4.6	21	139	3.3	29	13	2.1	23	309	2.5	19	276	6.5	25	3	1.9	22	240	5.4	
2,000-----	30	301	1.2	26	260	7.3	21	284	7.2	23	281	3.1	23	274	9.9	17	297	7.0	21	138	2.2	25	350	2.8	20	281	3.5	15	278	8.5	23	5	2.1	22	254	6.8	
2,500-----	30	275	1.4	24	262	9.0	20	290	8.5	20	280	4.8	21	278	11.0	16	290	8.7	21	155	1.2	23	311	4.2	20	272	5.4	12	288	9.0	23	360	2.7	20	269	6.9	
3,000-----	29	269	2.8	23	267	10.5	19	300	9.2	20	282	7.0	20	278	12.5	16	279	10.3	20	341	3.22	299	5.0	19	272	7.3	11	294	10.9	23	3	3.7	18	278	7.4		
4,000-----	24	279	6.0	16	283	12.4	15	306	10.4	16	281	10.7	16	288	12.3	13	294	13.2	15	13	2.9	18	272	6.7	12	262	10.0	--	--	--	--	--	--	--	--		
5,000-----	24	281	8.7	15	288	17.3	--	--	--	14	286	12.7	13	287	14.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6,000-----	23	276	11.9	14	288	19.3	--	--	--	11	283	17.2	11	293	16.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8,000-----	11	296	13.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Altitude (meters) m s l	Omaha, Nebr. (306 m.)		Phoenix, Ariz. (338 m.)		Rapid City, S. Dak. (982 m.)		St. Cloud, Minn. (318 m.)		St. Louis, Mo. (181 m.)		San Antonio, Tex. (240 m.)		San Diego, Calif. (13 m.)		Sault Ste. Marie, Mich. (221 m.)		Seattle, Wash. (116 m.)		Spokane, Wash. (725 m.)		Washington, D.C. (24 m.)															
	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction	No. of observations	Direction														
SURFACE-----	27	282	1.9	30	121	0.3	29	348	3.1	26	276	2.0	29	244	2.8	26	159	0.5	27	267	2.8	25	282	0.9	28	42	1.3	26	83	0.5	24	261	1.5			
500-----	27	278	2.5	30	111	4	--	--	--	26	266	2.9	29	256	3.8	26	145	9	27	268	2.3	25	280	2.1	28	126	1.4	--	--	--	--	24	252	3.7		
1,000-----	27	277	4.5	30	145	6	29	348	3.3	25	261	4.3	26	253	4.8	24	186	7	24	188	6	17	255	5.5	25	180	4.5	26	160	1.3	23	266	6.2			
1,500-----	25	265	5.8	28	165	8	29	321	5.5	24	273	6.4	23	272	6.2	23	243	2.0	23	69	7	13	261	6.8	22	201	3.3	23	217	3.0	20	273	7.6			
2,000-----	25	267	7.5	27	193	1.2	27	308	7.3	22	285	9.2	21	278	7.7	18	260	3.7	22	65	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
2,500-----	25	268	8.2	27	209	1.6	25	300	9.4	21	292	10.9	17	290	9.4	17	263	7.1	21	321	1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3,000-----	22	270	9.1	26	231	2.9	25	301	10.3	20	290	11.8	15	294	11.4	16	270	8.5	21	307	2.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4,000-----	21	271	10.8	24	255	5.4	22	301	10.9	14	298	15.3	14	306	11.8	15	270	11.3	20	287	4.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5,000-----	17	281	12.8	20	253	8.9	18	297	11.8	11	293	17.5	14	298	14.6	14	266	13.3	17	270	6.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6,000-----	16	277	15.6	16	262	10.2	15	287	11.7	10	288	17.9	11	312	15.3	12	264	16.5	16	265	9.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8,000-----	10	309	16.7	14	264	15.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°); speeds in meters per second.



# RAWIN DATA

Average monthly resultant winds

Table 22

NOVEMBER 1952

Altitude (meters) m.s.l.	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Burrwood, La. (3 m.)			Caribou, Me. (191 m.)			Charleston, S.C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N.C. (275 m.)			Hatteras, N.C. (3 m.)			Int. Falls, Minn. (358 m.)			
	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed					
Surface-----	30	60	2.3	27	146	3.1	30	325	2.6	30	101	1.2	29	54	2.2	30	292	1.4	30	264	0.5	30	214	1.8	30	56	1.2	30	222	0.7	30	294	1.2	26	267	1.3	
500-----	---	---	---	---	---	---	---	---	---	30	131	4.7	29	83	2.8	30	285	2.7	30	233	2.2	30	243	4.3	---	---	---	---	---	---	---	---	---	---	---	---	
1,000-----	---	---	---	27	172	3.6	29	319	7.0	29	143	5.2	28	110	8.8	30	289	3.7	29	229	3.1	30	256	5.8	---	---	---	---	---	---	---	---	---	---	---	---	
1,500-----	---	---	---	27	206	3.7	29	323	7.5	29	170	3.5	28	239	1.3	30	277	4.7	29	237	4.1	29	276	6.0	29	54	1.2	30	254	6.9	29	261	5.0	23	304	6.4	
2,000-----	30	236	1.2	27	244	5.3	29	318	7.7	29	205	3.6	28	272	2.9	30	276	5.9	30	256	5.9	29	281	6.5	29	335	6.6	30	263	8.4	28	269	6.8	22	310	7.1	
2,500-----	30	253	4.0	27	249	7.2	29	313	8.6	29	232	4.3	29	263	4.3	30	276	6.8	29	266	7.0	29	277	8.4	29	268	1.1	30	265	9.7	27	275	9.0	22	308	9.4	
3,000-----	30	263	5.5	27	254	8.1	29	311	8.8	29	249	5.6	28	258	6.6	29	271	8.0	29	273	8.4	29	278	10.9	30	260	2.9	30	265	11.2	27	276	10.7	21	312	9.5	
4,000-----	30	273	7.6	27	269	11.8	29	305	10.4	29	254	8.1	26	256	9.1	27	271	8.5	28	269	12.1	29	275	13.0	30	282	5.4	28	262	13.5	25	273	13.4	20	293	12.2	
5,000-----	28	269	9.6	24	262	12.3	28	292	11.7	29	256	10.5	28	255	12.1	27	266	9.5	28	278	16.2	27	275	15.2	30	278	7.5	28	266	16.8	24	272	17.7	17	284	11.4	
6,000-----	27	269	11.5	23	268	16.8	26	282	11.9	28	258	12.9	28	261	15.2	26	261	14.0	25	279	18.5	27	276	18.1	30	284	9.6	24	265	18.9	21	277	18.3	15	280	11.1	
8,000-----	21	269	12.6	18	266	21.9	17	249	18.2	27	257	17.7	25	266	21.2	22	247	16.9	17	278	19.2	19	269	21.1	27	267	10.1	20	273	21.4	13	277	14.6	14	263	17.2	
10,000-----	17	273	20.6	14	269	25.2	15	262	15.8	23	261	23.3	18	270	25.5	17	261	17.5	13	281	23.6	11	266	16.9	23	275	12.6	12	277	18.3	12	274	23.5	12	257	20.3	
12,000-----	12	277	23.8	---	---	---	12	257	17.4	14	267	28.8	14	279	30.4	15	253	15.2	11	272	26.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
14,000-----	---	---	---	---	---	---	---	---	---	10	267	19.9	13	272	30.0	14	255	11.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
18,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Altitude (meters) m.s.l.	Little Rock, Ark. (80 m.)			Medford, Ore. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P.R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)				
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed		
Surface-----	30	222	1.0	30	210	0.6	30	35	2.5	29	293	1.9	30	230	1.0	30	333	0.1	30	154	1.9	30	324	2.5	30	73	1.8	30	154	1.5	30	276	1.8	30	79	0.9		
500-----	30	235	2.9	30	195	7.30	67	5.6	29	292	4.1	30	241	3.9	30	352	1.1	25	170	9.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,000-----	30	232	4.2	30	135	1.8	30	80	4.9	28	291	4.3	30	239	5.2	30	3	1.4	25	235	1.4	30	321	3.0	30	162	3.9	29	65	4.6	28	295	6.5	30	353	1.9		
1,500-----	30	242	5.4	30	131	2.1	30	85	2.8	28	276	4.8	30	259	5.8	30	336	9.25	240	3.9	30	314	7.0	30	204	3.9	30	61	4.1	27	303	7.9	28	356	1.8			
2,000-----	29	253	6.3	30	135	1.5	30	35	9.28	267	6.5	30	269	7.7	29	353	1.1	27	256	6.7	30	312	8.3	29	232	4.9	30	62	3.1	27	294	8.7	28	358	2.1			
2,500-----	28	268	7.4	30	347	3.30	323	1.2	28	264	9.4	29	269	9.4	29	346	1.4	28	256	7.6	29	308	8.3	29	246	6.8	30	63	2.5	27	289	9.6	28	338	2.3			
3,000-----	28	273	9.1	30	301	1.0	30	307	3.0	27	268	10.6	28	275	10.2	29	339	2.3	27	266	9.5	29	303	10.1	29	253	8.8	30	45	2.1	27	283	11.3	27	317	3.1		
4,000-----	27	278	12.7	30	310	2.8	28	286	5.7	27	275	14.2	28	270	13.8	29	331	2.6	26	264	11.5	29	291	11.0	28	258	11.1	30	343	1.3	25	283	14.6	28	307	3.6		
5,000-----	24	270	15.8	28	282	5.4	28	274	7.7	24	275	16.3	28	268	16.0	29	325	3.9	25	270	13.4	29	293	12.6	27	263	14.7	30	339	2.0	24	280	13.7	29	309	5.6		
6,000-----	22	272	19.9	26	301	4.9	28	276	10.1	20	291	16.6	22	269	18.8	29	330	4.8	25	266	16.3	27	276	13.1	27	264	18.6	30	321	2.3	24	278	15.4	29	304	7.2		
8,000-----	16	274	22.8	26	295	5.3	27	276	14.6	13	277	15.6	16	268	20.5	26	329	9.1	14	285	16.4	22	270	12.8	23	264	23.9	30	299	4.2	21	278	18.3	25	290	9.6		
10,000-----	---	---	---	20	293	5.2	27	282	20.8	---	---	---	10	269	16.9	25	325	7.1	12	279	24.3	18	270	15.8	15	275	27.0	30	277	6.5	15	278	17.5	25	282	12.2		
12,000-----	---	---	---	18	299	7.7	25	284	24.0	---	---	---	---	---	---	19	292	12.7	---	---	---	15	277	14.5	11	277	30.1	30	279	13.4	13	261	18.0	23	267	12.5		
14,000-----	---	---	---	14	311	11.3	21	281	20.7	---	---	---	---	---	---	13	291	11.2	---	---	---	11	262	15.7	---	---	---	30	278	14.5	12	253	13.9	22	265	13.3		
16,000-----	---	---	---	13	308	11.0	16	282	11.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
18,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
20,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
22,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	

Altitude (meters) m.s.l.	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Swan Is., W.I. (10 m.)			Tatoosh Is., Wash. (33 m.)			Washington, D.C. (88 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface-----	30	333	0.3	30	116	0.3	29	46	4.4	29	111	4.0	30	203	0.9
500-----	30	239	1.0	---	---	---	---	---	7.1	28	160	2.8	30	237	5.2
1,000-----	29	236	4.5	29	160	1.3	29	59	6.8	29	200	3.3	29	261	7.1
1,500-----	29	257	5.7	29	220	2.1	24	72	5.1	28	241	2.4	29	269	7.8
2,000-----	28	259	7.4	29	266	3.4	23	75	4.8	28	251	2.6	28	261	8.6
2,500-----	27	261	9.0	29											



# SOLAR RADIATION DATA

Table 30 Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

NOVEMBER 1952

ALBUQUERQUE, N. M.										BOSTON, MASS.									
Sun's zenith distance										Sun's zenith distance									
A. M.					P. M.					A. M.					P. M.				
Date	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	Date	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°
Air mass										Air mass									
	4.08	3.26	2.44	1.63	*0.815	1.63	2.44	3.26	4.08		4.36	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96
Nov. 1	0.95	1.10	1.28	1.46	---	1.47	1.35	1.26	1.17	Nov. 4	---	---	---	1.33	---	1.32	1.19	1.08	0.91
4	.71	.84	1.01	1.27	---	1.40	1.22	1.07	.94	5 (smoky)	0.81	0.78	0.90	---	---	.88	.88	.69	.65
5	1.11	1.22	1.36	1.54	---	1.35	1.31	1.22	1.10	14	---	---	1.13	---	---	---	---	---	---
7	---	---	---	---	---	1.48	1.24	1.12	.99	24	---	---	.68	---	---	---	---	---	---
8	---	---	1.21	---	---	---	---	---	.73	25	.69	.89	---	---	---	---	---	---	---
10	1.03	1.14	1.28	---	---	1.20	1.03	.95	.79	28	---	---	---	---	---	---	1.14	.97	.83
11	.93	1.05	1.15	1.32	---	Recorder inoperative				Aver-	.75	.84	.90	1.33	---	1.10	1.07	.91	.80
13	1.15	1.25	1.38	1.53	---	1.48	1.34	1.22	1.14	Departures	.00	.01	.00	+15	---	-.02	+06	+03	+04
14	1.10	1.20	1.32	1.41	---	1.52	1.37	1.24	1.13	RATIO BOSTON/BLUE HILL ON COMPARABLE DATES									
15	CLOUDY									0.79	0.68	0.88	1.00	---	---	0.82	0.92	0.87	0.85
16-30	Recorder inoperative																		
Aver-	1.00	1.11	1.25	1.42	---	1.41	1.27	1.15	1.00										
Departures	-.02	-.02	+01	+03	---	+02	+03	+03	-.01										
LINCOLN, NEBR.										BLUE HILL, MASS.									
Air mass										Air mass									
	4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86
Nov. 1	0.87	0.96	1.09	1.27	---	1.27	1.09	0.99	0.88	Nov. 1	---	---	---	---	---	---	1.13	0.77	0.67
3	.79	.90	1.05	1.22	---	---	---	---	---	4	---	0.92	1.11	1.33	---	1.39	1.25	1.17	1.08
5	---	---	.94	1.16	---	1.16	1.01	.90	.79	5	1.05	1.14	1.27	1.34	---	1.28	1.09	0.98	
10	.81	.94	1.04	1.27	---	1.27	1.12	1.01	.94	12	---	---	---	---	---	---	---	1.17	1.07
13	---	---	---	1.14	---	1.14	.94	---	---	13	---	---	---	---	---	---	1.19	1.08	.95
17	---	---	---	---	---	---	1.11	.98	---	14	.88	.92	1.05	---	---	---	---	---	---
19	.92	1.04	1.18	---	---	---	---	---	---	25	.84	---	---	---	---	---	---	---	---
20	.83	.96	1.11	---	---	---	1.09	.99	.88	28	---	.91	1.14	---	---	---	1.15	1.01	.95
Aver-	.84	.96	1.07	1.21	---	1.21	1.06	.97	.88	29	1.02	1.13	1.24	---	---	---	1.25	1.12	1.03
Departures	-.05	-.04	-.09	-.13	---	-.11	-.09	-.04	-.02	Aver-	.95	1.00	1.16	1.34	---	1.34	1.18	1.04	.95
										Departures	+.05	.00	+.05	+.07	---	+.09	+.07	+.06	+.09
MADISON, WIS.										TABLE MOUNTAIN, CALIF.									
Air mass										Air mass									
	4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76
Nov. 1	0.50	0.68	0.80	0.95	---	---	---	---	---	Nov. 1	---	---	---	1.50	---	---	---	---	---
3	.81	.92	1.02	1.14	---	---	---	---	---	4	---	---	---	1.48	---	---	---	---	---
4	.76	.86	1.02	---	---	---	---	---	---	9	---	---	---	1.53	---	---	---	---	---
5	.58	.70	.83	---	---	---	---	---	---	10	---	---	---	1.55	---	---	---	---	---
7	.79	.92	1.06	1.22	---	DUST	---	---	---	17	---	---	---	1.52	---	---	---	---	---
10	.84	.92	1.04	---	---	---	---	---	---	18	---	---	---	1.53	---	---	---	---	---
11	.77	.91	1.03	---	---	---	---	---	---	19	---	---	---	1.52	---	---	---	---	---
21	.76	.84	.96	---	---	---	---	---	---	24	---	---	---	1.54	---	---	---	---	---
Aver-	.73	.84	.97	1.10	---	---	---	---	---	25	---	---	---	1.55	---	---	---	---	---
Departures	-.11	-.12	-.14	-.19	---	---	---	---	---	26	---	---	---	1.52	---	---	---	---	---
										27	---	---	---	1.53	---	---	---	---	---
										28	---	---	---	1.49	---	---	---	---	---
										Aver-	---	---	---	1.52	---	---	---	---	---
										Departures	---	---	---	-.01	---	---	---	---	---
* Extrapolated																			

\* Extrapolated

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of Tables 30 and 31 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of

pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.



# SOLAR RADIATION DATA

NOVEMBER 1952

**Table 31a** Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during the month

								Avg										Avg										Avg
Date-----	5	6	7	8	9	10	11		12	13	14	15	16	17	18		19	20	21	22	23	24	25					
Langleys-----	56	55	44	61	41	19	50	47	66	53	48	-	-	15	47	46	58	19	41	14		52					36	
Date-----	26	27	28	29	30	1	2																					
Langleys-----	36	47	39	38	36	35	22	36																				

**Table 31b** Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing east at Blue Hill, Mass. during the month

								Avg									Avg											Avg
Date-----	5	6	7	8	9	10	11		12	13	14	15	16	17	18		19	20	21	22	23	24	25					
Langleys-----	221	101	84	124	80	18	93	103	148	86	184	80	48	15	137	100	106	11	56	17	36	142	151				78	
Date-----	26	27	28	29	30	1	2																					
Langleys-----	34	61	144	195	82	202	34	107																				

**Table 31c** Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

	Avg														Avg										Avg
Date-----	5	6	7	8	9	10	11		12	13	14	15	16	17	18		19	20	21	22	23	24	25		
Langleys-----	510	301	82	221	57	20	68	180	323	328	404	178	51	3	453	240	250	19	100	10	35	116	285	159	
Date-----	26	27	28	29	30	1	2																		
Langleys-----	25	147	474	538	316	541	24	295																	

**Table 31d** Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing west at Blue Hill, Mass. during the month

								Avg									Avg											Avg
Date-----	5	6	7	8	9	10	11		12	13	14	15	16	17	18		19	20	21	22	23	24	25					
Langleys-----	199	153	45	105	36	17	52	87	171	199	120	71	49	13	174	114	88	18	55	14	32	153	82				63	
Date-----	26	27	28	29	30	1	2																					
Langleys-----	29	77	174	180	116	185	28	113																				

**Table 31e** Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

								Avg									Avg										Avg
Date-----	5	6	7	8	9	10	11		12	13	14	15	16	17	18		19	20	21	22	23	24	25				
Langleys-----	37	75	69	92	58	19	75	61	66	59	49	93	75	18	46	58	81	30	78	14	47	62	73			55	
Date-----	26	27	28	29	30	1	2																				
Langleys-----	43	81	31	29	71	24	45	46																			

Note: Langley is the unit used to denote one gram calorie per square centimeter



# SOLAR RADIATION DATA

Table 33—Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langley's

	Albuquerque, N. Mex.	Alachua, Fla.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Charleston, S.C.	Cleveland, Ohio	Columbia, Mo.	Columbus, Ohio	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	E. Wareham, Mass.	Edmonton, Alberta	E. Paso, Tex.	El Y. Nev.	Fairbanks, Alaska	Fort Worth, Tex.	Grand Junction, Colo.	Grand Lake, Colo.	Great Falls, Mont.	Greensboro, N.C.	Griffin, Ga.	Hatteras, N.C.	Indianapolis, Ind.	Itasca, N.Y.	Lander, Wyo.	
1952																																	
November 5--	424	451	410	8	81	258	288	221	212	135	424	228	369	285	253	395	205	274	177	441	(336)	18	127	362	363	65	354	427	403	292	308	247	
November 6--	366	219	282	4	47	288	205	251	173	325	73	21	379	132	223	286	127	204	178	441	(356)	(33)	416	313	245	236	350	270	312	72	222		
November 7--	389	405	404	4	29	261	205	269	192	353	85	102	282	286	303	279	128	121	45	376	(196)	19	404	291	356	250	361	420	359	320	361		
November 8--	351	376	278	4	50	85	186	276	206	342	131	132	83	137	296	287	131	236	166	324	(361)	28	153	354	116	138	282	352	410	108	115		
November 9--	376	278	278	4	14	75	279	271	206	342	131	132	83	137	296	287	131	236	166	324	(361)	28	153	354	116	138	282	352	410	108	115		
November 10--	384	379	95	2	90	217	228	235	83	89	134	121	250	155	230	241	139	187	37	413	(357)	17	455	348	331	250	312	300	342	202	6	329	
November 11--	402	117	104	0	58	139	115	228	84	---	74	264	281	292	263	377	171	155	156	411	(220)	53	449	340	331	222	18	91	56	290	217	139	
Averages--	385	338	271	4	52	189	144	250	127	256	127	330	138	261	198	261	129	165	145	395	(313)	(27)	291	325	298	(171)	237	279	279	257	100	237	
Departures--	+20	-38	+1	---	---	-1	-37	+56	+9	-69	+3	+18	+35	---	-1	-6	+18	13	---	-15	-79	---	-58	+18	-52	-9	-60	16	-48	-36	-54		
November 12--	351	382	362	3	66	232	195	85	157	466	113	146	328	230	122	320	98	165	137	421	(290)	53	433	290	277	187	365	400	381	279	202	249	
November 13--	404	414	365	2	72	90	214	132	195	483	234	254	288	74	322	191	219	165	137	421	(290)	53	433	290	277	187	365	400	381	279	202	249	
November 14--	391	305	167	2	15	210	231	84	200	422	280	154	191	293	201	156	360	111	202	60	419	50	25	434	371	309	123	135	189	185	145	231	197
November 15--	243	354	313	1	48	73	154	226	108	342	153	162	291	231	47	325	160	153	38	405	(201)	17	587	54	149	128	285	368	352	206	211	99	
November 16--	111	394	345	0	33	30	99	245	110	274	80	365	203	---	104	284	179	137	159	49	278	271	17	587	54	149	128	285	368	352	206	211	99
November 17--	426	352	360	1	56	20	24	248	38	190	236	359	155	196	181	241	345	34	31	70	113	(370)	12	267	142	134	222	305	373	338	181	50	155
November 18--	389	317	204	1	30	28	239	248	213	138	248	255	117	219	128	276	281	43	242	134	(249)	9	404	256	164	148	180	243	309	59	36	246	
Averages--	331	359	302	*	1	45	98	165	146	291	195	288	172	263	195	173	305	109	167	90	355	(249)	22	355	219	201	159	262	323	198	153	188	
Departures--	-6	-12	+26	---	---	-58	+2	+16	+2	-33	+65	-12	+35	+57	-33	+13	+6	-3	---	-29	-121	---	+13	31	-22	-4	-50	+40	+19	+54	+32	-44	
November 19--	365	106	49	---	23	194	188	467	168	267	244	82	5	182	31	222	226	183	101	416	(346)	17	423	241	162	208	62	85	47	139	36	203	
November 20--	374	368	77	---	23	129	37	176	53	454	216	---	85	338	205	260	322	84	85	107	404	(344)	19	430	289	280	64	68	107	17	127	36	237
November 21--	377	422	163	---	20	185	114	244	112	455	91	224	43	313	73	280	292	133	65	324	(292)	(9)	406	265	---	246	78	175	39	245	24	137	
November 22--	368	417	427	---	25	182	20	252	18	107	81	---	---	266	45	280	221	28	53	92	330	(301)	10	61	124	207	89	75	368	120	23	145	203
November 23--	144	399	235	---	35	225	62	243	53	310	49	331	---	131	40	279	63	31	89	40	129	(331)	12	56	194	271	83	211	365	307	255	58	307
November 24--	392	259	---	---	60	96	205	238	180	349	340	---	42	107	265	44	102	187	90	---	(251)	6	40	295	150	121	339	344	245	122	70	195	
November 25--	391	197	115	---	33	77	166	244	155	(377)	136	287	---	49	92	170	4	196	109	---	(315)	6	383	297	221	158	224	271	285	62	124	221	
Averages--	303	329	198	---	31	155	113	266	103	(317)	121	253	---	189	85	260	191	66	132	86	333	(311)	(11)	257	244	138	151	222	151	139	70	222	
Departures--	-17	0	-29	---	---	-5	-31	+88	-8	+1	+2	-25	---	-4	---	+36	-63	-22	-11	---	-27	-58	---	-43	+22	-10	-7	-120	-46	-134	-5	-40	0
November 26--	(373)	248	181	---	22	151	60	233	53	228	72	196	---	90	178	239	(353)	15	68	43	253	(318)	28	354	290	217	235	---	107	194	44	25	265
November 27--	383	307	34	---	14	(213)	134	---	110	54	24	95	---	299	253	(360)	79	96	81	393	(289)	7	377	348	282	196	---	125	127	252	120	209	
November 28--	270	372	319	---	25	(202)	219	---	197	---	121	316	---	288	134	164	128	108	217	34	339	(312)	8	39	285	266	144	312	359	287	222	61	205
November 29--	351	349	183	---	40	220	238	---	205	124	171	340	---	118	119	135	346	164	212	78	166	(307)	8	164	293	312	213	162	166	324	63	164	310
November 30--	67	95	329	---	33	218	173	249	152	65	100	344	---	82	130	202	200	100	151	89	354	(232)	10	191	198	267	210	---	362	230	179	87	173
December 1--	321	202	279	---	24	(205)	230	69	218	161	208	335	---	68	152	15	274	70	221	38	376	(155)	8	124	---	301	164	---	340	123	58	241	211
December 2--	236	284	170	---	48	104	57	120	60	217	217	42	---	165	47	140	(238)	123	66	65	339	(250)	6	44	---	250	120	40	86	---	98	61	244
Averages--	(286)	265	214	---	31	(188)	159	168	142	142	130	228	---	158	145	155	(271)	94	147	61	317	(266)	10	185	283	271	183	---	221	214	131	108	231
Departures--	-34	-31	---	---	---	---	+11	+16	+35	+146	+11	-21	---	-29	---	-15	+75	+1	+8	---	-23	-29	---	-79	+51	+53	+41	-50	+19	-31	-7	+13	+34

Accumulated Departures January 1 to December 2, 1952

	+1876	--	--	--	--	-3164	--	-9308	-4504	--	+1918	--	+	10724	--	-2177	--	--	-2709	--	+	15028	--	--	--	--	+	10115	-6146
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Note.--Langley is the unit used to denote one gram calorie per square centimeter.

Last sunrise.



# SOLAR RADIATION DATA

Table 33.—Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in lanqueys. —Continued

NOVEMBER 1952

	Las Vegas, Nev.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif. (WHP)	Los Angeles, Calif. (WBGO)	Madison, Wis.	Medford, Ore.	Miami, Fla.	Newport, R. I.	New York, N.Y.	North Head, Wash.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Ottawa, Ontario	Phoenix, Ariz.	Rapid City, S. Dak.	Riverside, Calif.	San Antonio, Tex.	Santa Maria, Calif.	Sault Ste. Marie, Mich.	Saville, N.Y.	Schenectady, N.Y.	Seabrook, N.J.	Seattle, Wash. (U. of W.)	Seattle, Wash. (WBAP)	State College, Pa.	Stillwater, Okla.	Swan Island, B.W.I.	Tampa, Fla.	Upton, N.Y.	Washington, D.C. (WBGO)	Washington, D.C. (Amer. U.)	Winnipeg, Manitoba	
November 5--	380	300	281	328	310	255	178	476	321	222	202	255	411	150	419	253	332	188	288	145	345	205	288	99	95	244	356	427	489	311	249	268	81	
November 6--	400	299	368	287	251	165	234	448	243	235	202	286	407	177	398	228	331	380	288	145	345	205	288	175	171	92	489	427	489	311	249	268	81	
November 7--	404	299	368	287	251	165	234	448	243	235	202	286	407	177	398	228	331	380	288	145	345	205	288	175	171	92	489	427	489	311	249	268	81	
November 8--	355	113	211	316	283	216	257	400	305	254	210	146	317	243	322	192	152	178	361	181	260	149	203	171	202	213	248	382	543	244	160	152	178	203
November 9--	419	235	47	372	342	196	157	378	92	78	87	21	71	65	331	270	391	189	377	67	76	14	134	103	105	38	542	314	82	122	122	122	128	145
November 10--	419	235	47	372	342	196	157	378	92	78	87	21	71	65	331	270	391	189	377	67	76	14	134	103	105	38	542	314	82	122	122	122	128	145
November 11--	316	234	372	288	295	254	68	465	230	138	136	33	430	115	429	244	302	489	271	93	89	219	219	43	39	283	552	240	262	140	152	41	109	31
Averages--	356	248	244	297	277	226	191	433	200	165	165	143	345	125	359	243	292	306	321	120	188	99	198	123	127	162	279	481	349	189	171	173	126	41
Departures--	11	24	1	21	43	463	43	28	41	16	433	80	5	12	410	9	9	96	27	13	11	42	19	114	1	41	15	10	10	46	---	---	---	
November 12	298	252	377	316	244	162	---	---	316	270	274	68	404	111	309	209	321	488	253	149	309	151	270	91	102	232	353	449	257	259	271	160	160	---
November 13	316	169	327	174	139	202	57	169	259	184	99	284	277	249	295	174	320	351	182	274	134	253	41	43	218	214	490	446	268	244	104	104	---	---
November 14	163	239	168	165	109	152	94	243	209	184	---	178	41	193	397	181	105	300	205	86	260	157	251	93	94	220	347	541	261	240	240	240	240	---
November 15--	173	217	206	139	102	194	240	299	178	45	239	217	339	102	218	137	85	280	122	67	119	67	28	178	191	72	314	509	433	126	---	---	---	
November 16--	244	61	265	402	301	32	73	430	200	243	176	250	270	36	264	191	359	154	388	85	204	148	232	61	111	186	227	451	394	170	---	---	---	
November 17--	357	216	218	358	305	44	81	341	31	20	101	263	336	73	383	15	363	137	388	32	48	30	98	57	68	57	163	301	358	(446)	---	---	---	
November 18--	366	47	53	390	322	110	81	411	248	76	188	138	398	69	380	184	368	417	381	17	265	54	76	103	99	18	308	410	393	253	41	26	41	26
Averages--	262	(175)	272	276	217	128	104	316	199	150	145	234	349	129	333	164	248	302	(298)	90	210	106	167	90	101	145	274	479	363	(195)	---	---	---	
Departures--	47	33	43	20	24	22	40	54	17	1	429	12	415	---	12	33	27	18	9	23	21	34	35	43	---	17	425	---	---	---	---	---	---	
November 19--	330	230	323	384	339	62	60	325	175	107	131	3	234	32	377	201	359	464	366	41	145	75	138	33	64	12	241	---	---	---	---	---	---	
November 20--	353	240	337	350	323	48	40	153	107	30	215	17	411	20	372	228	349	(301)	58	58	15	47	110	145	15	340	462	78	81	---	---	---	---	
November 21--	271	217	351	276	244	154	127	420	132	23	---	---	385	41	266	78	297	447	300	113	37	34	30	160	123	12	315	453	311	66	---	---	---	
November 22--	333	181	295	61	50	170	224	480	43	19	222	5	81	24	---	163	87	98	177	27	37	21	43	134	143	15	316	455	31	---	---	---	---	
November 23--	178	128	237	334	245	202	247	406	46	84	217	246	88	131	---	230	939	83	303	109	159	140	129	63	148	57	34	408	444	166	---	---	---	
November 24--	357	41	---	369	316	36	236	390	224	233	183	111	70	128	153	97	362	84	367	109	238	92	243	48	63	194	---	---	---	---	---	---	---	
November 25--	358	28	---	347	310	5	221	325	198	146	205	139	66	93	367	147	336	375	273	10	220	68	140	86	76	130	35	440	303	201	---	---	---	---
Averages--	314	154	290	303	261	105	165	357	132	92	195	87	191	67	327	163	290	287	(298)	58	120	64	110	91	116	66	176	422	314	132	---	---	---	
Departures--	416	40	51	41	42	25	432	6	22	48	490	148	89	6	26	416	41	4	29	27	57	69	61	14	---	54	52	---	---	---	---	---	---	
November 26--	349	234	329	321	292	28	211	343	57	79	199	141	409	37	---	191	319	294	310	34	146	51	143	114	83	14	320	423	346	126	---	---	---	
November 27--	354	254	341	341	292	98	185	245	108	154	201	150	369	108	---	223	355	116	347	59	171	133	160	110	163	90	---	473	322	171	---	---	---	
November 28--	350	267	227	317	264	190	212	217	236	235	198	247	78	178	(382)	227	200	72	249	78	257	153	205	---	---	---	---	---	---	---	---	---	---	
November 29--	305	171	172	187	180	107	59	405	243	200	173	3	326	127	358	219	210	98	148	82	231	98	221	117	133	167	215	314	400	220	---	---	---	
November 30--	231	253	41	283	199	216	142	340	188	176	---	73	169	170	---	228	252	147	210	143	217	140	208	21	31	153	178	424	382	201	---	---	---	
December 1--	260	267	70	100	69	43	53	207	246	239	70	195	118	212	338	408	117	235	70	58	281	183	98	104	68	246	---	---	---	---	---	---	---	
December 2--	328	175	73	355	284	137	72	294	57	28	84	20	124	59	282	133	305	327	345	119	44	43	54	40	40	55	143	434	201	---	---	---	---	
Averages--	311	200	179	272	228	117	133	307	162	159	154	121	228	127	(375)	261	264	174	238	82	145	113	177	84	65	133	180	392	324	189	---	---	---	
Departures--	436	229	71	415	47	111	112	207	46	430	469	57	42	---	27	324	264	49	27	3	439	41	117	41	---	1	40	---	---	---	---	---	---	

Accumulated Departures January 1 to December 2, 1952

Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.

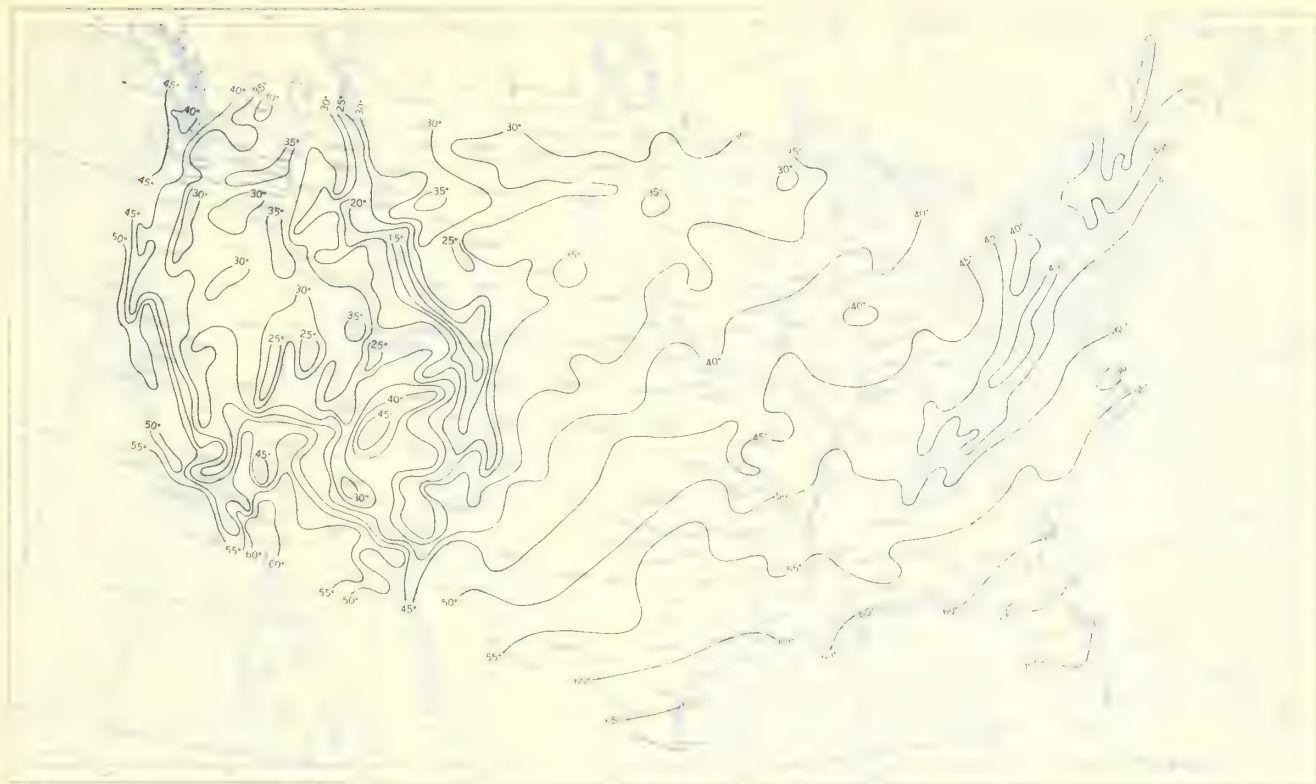
WRC, Asheville, N.C. — 3 2 53 — 2200



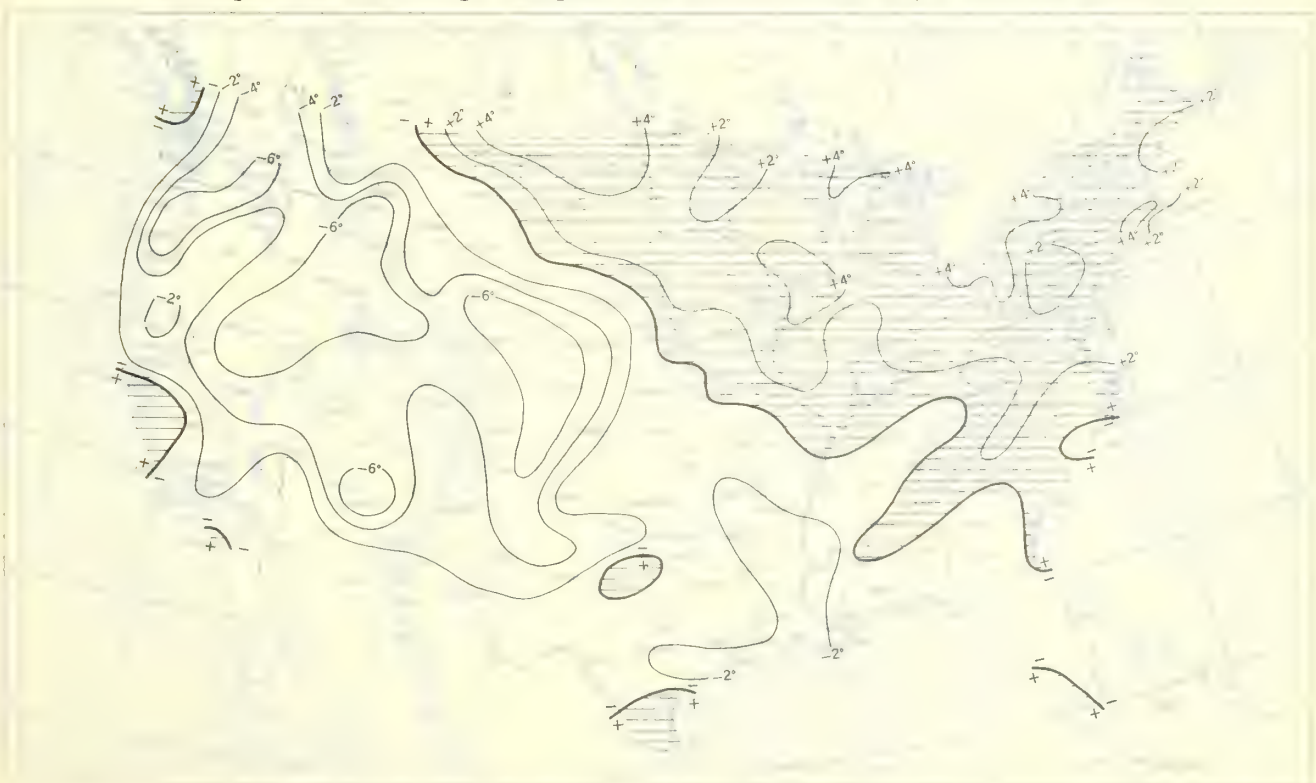




**Chart I. A. Average Temperature (°F.) at Surface, November 1952.**



**B. Departure of Average Temperature from Normal (°F.), November 1952.**



A. Based on reports from 800 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Normal average monthly temperatures are computed for Weather Bureau stations having at least 10 years of record.



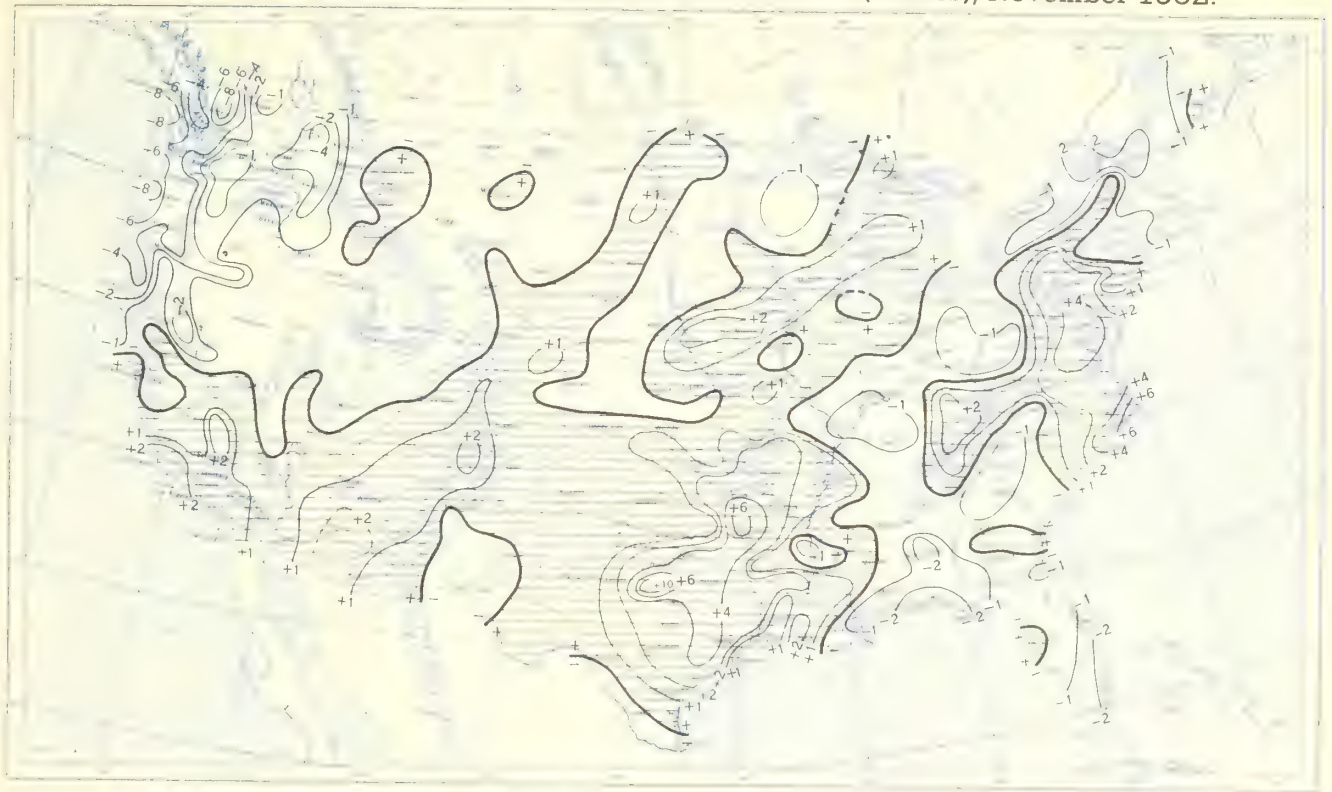
Chart II. Total Precipitation (Inches), November 1952.



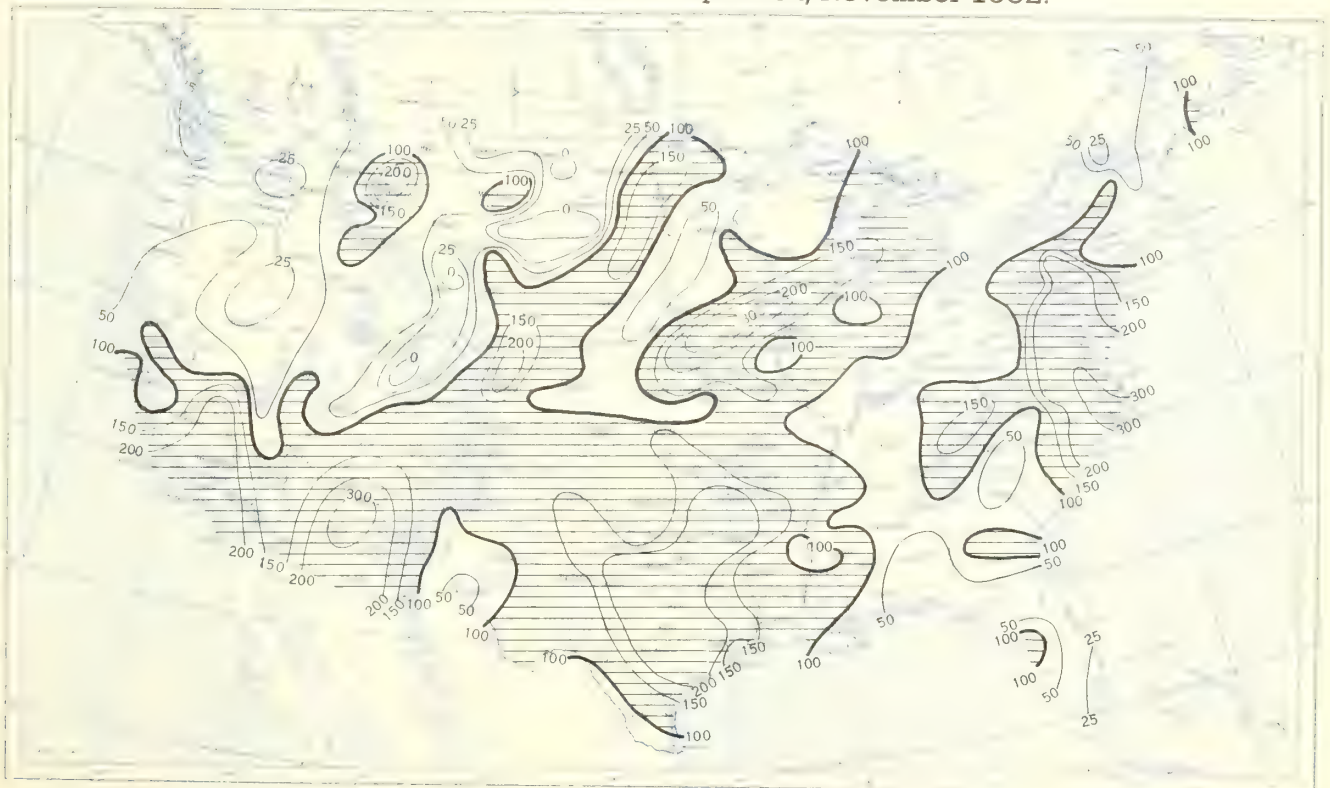
Based on daily precipitation records at 800 Weather Bureau and cooperative stations.



Chart III. A. Departure of Precipitation from Normal (Inches), November 1952.



B. Percentage of Normal Precipitation, November 1952.



Normal monthly precipitation amounts are computed for stations having at least 10 years of record.



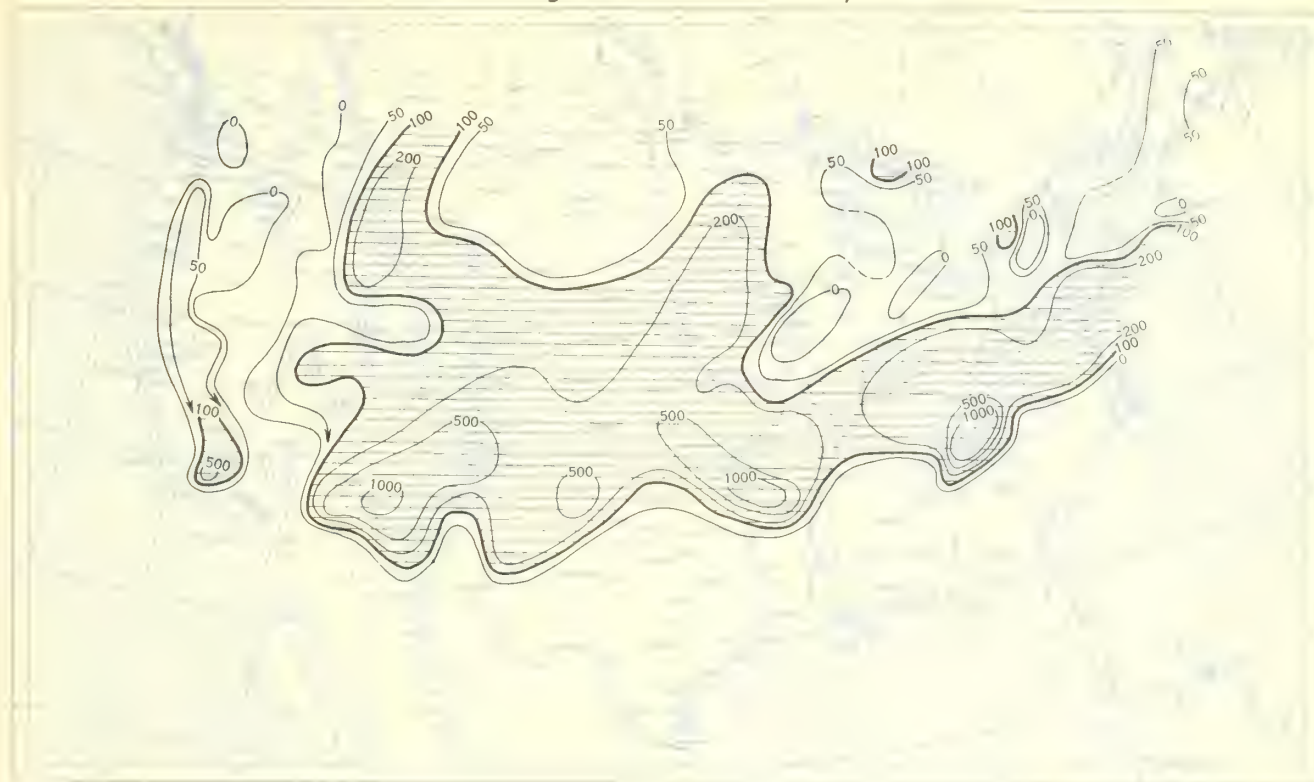
Chart IV. Total Snowfall (Inches), November 1952.



This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.



Chart V. A. Percentage of Normal Snowfall, November 1952.



B. Depth of Snow on Ground (Inches)



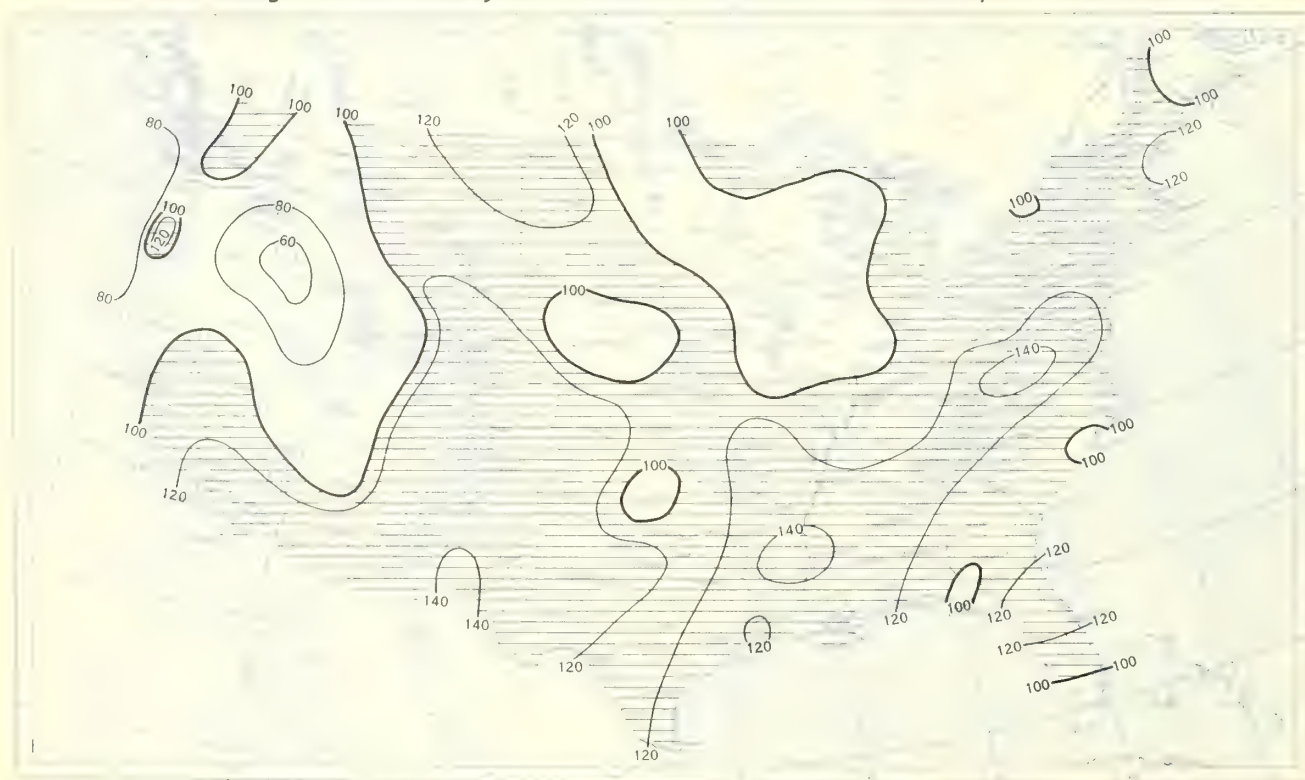
A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.  
B. Shows depth currently on ground at 7:30 a.m. E.S.T., of the Tuesday nearest the end of the month. It is based on reports from Weather Bureau and cooperative stations. Dashed line shows greatest southern extent of snowcover during month.



Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, November 1952.



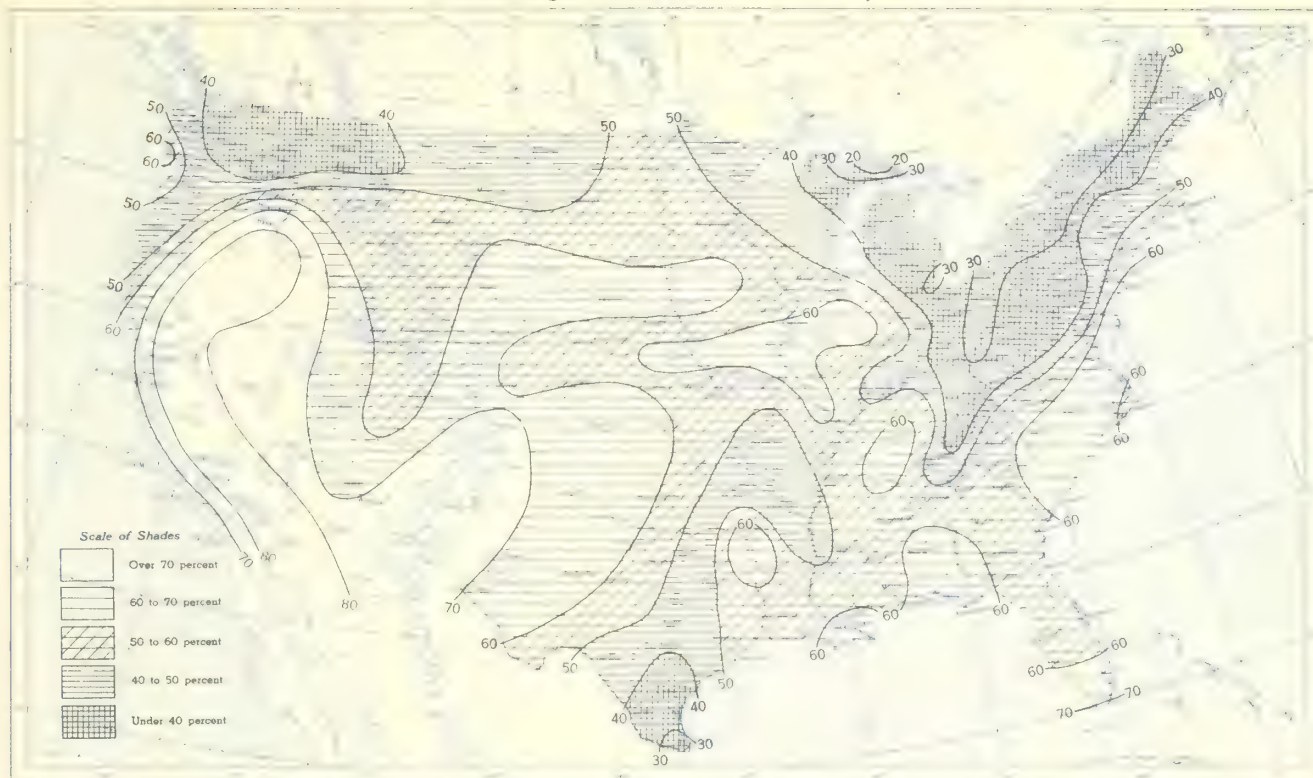
B. Percentage of Normal Sky Cover Between Sunrise and Sunset, November 1952.



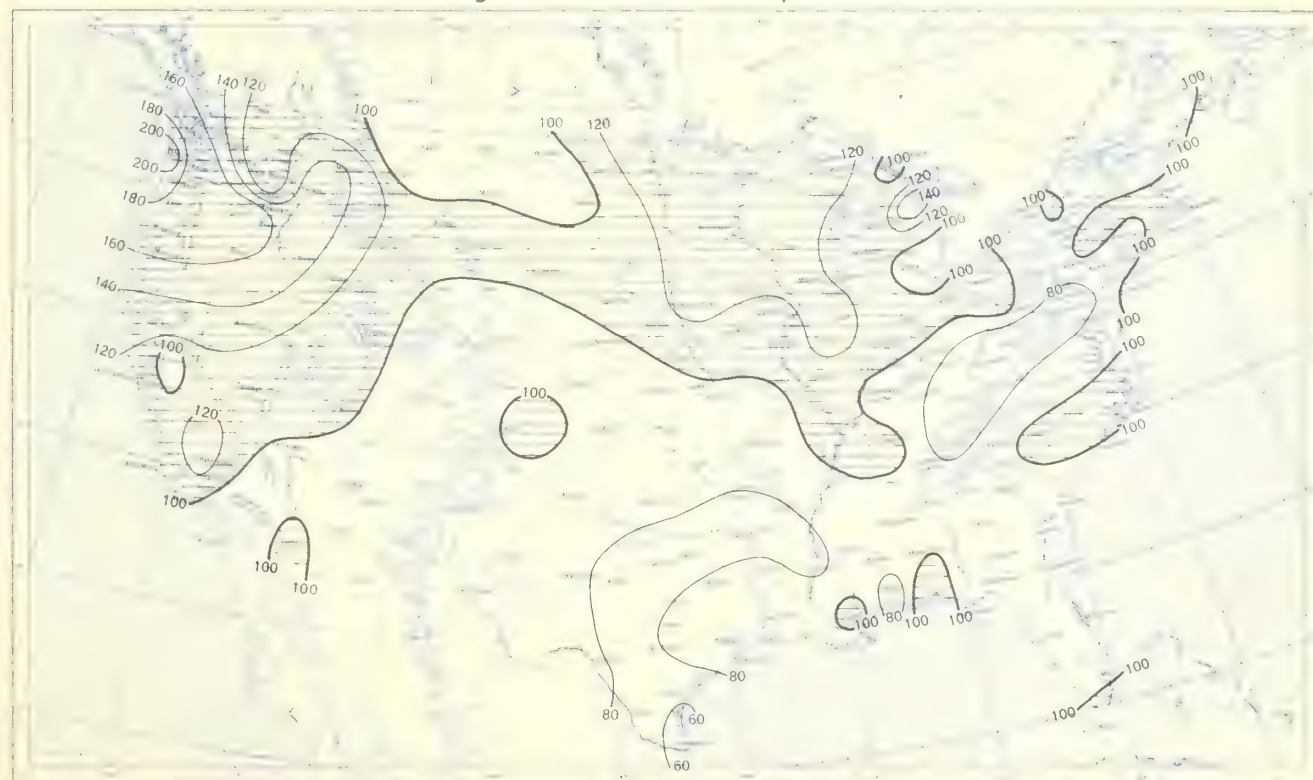
A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.



Chart VII. A. Percentage of Possible Sunshine, November 1952.



B. Percentage of Normal Sunshine, November 1952.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.



Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, November 1952. Inset: Percentage of Normal Average Daily Solar Radiation, November 1952.

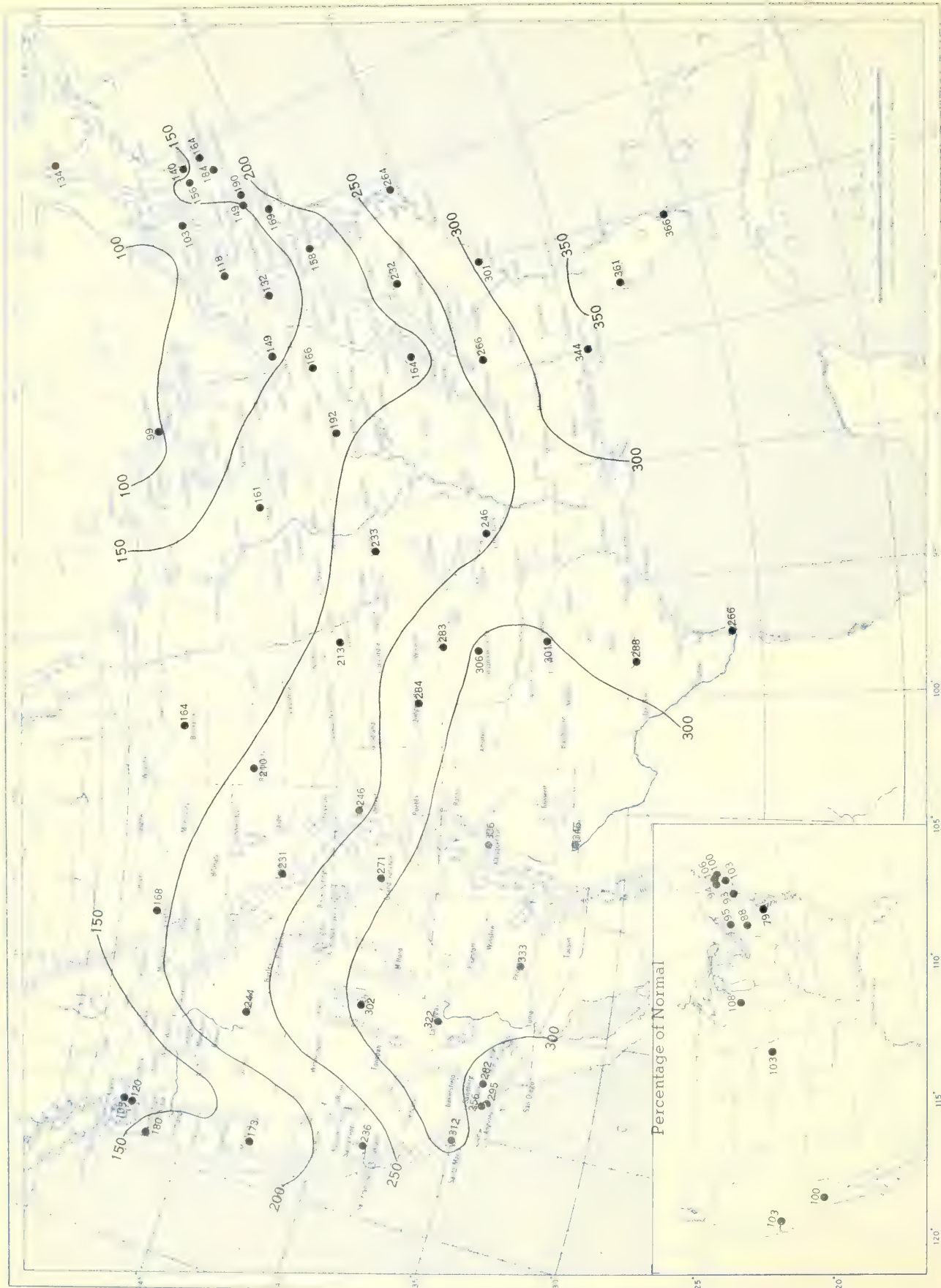
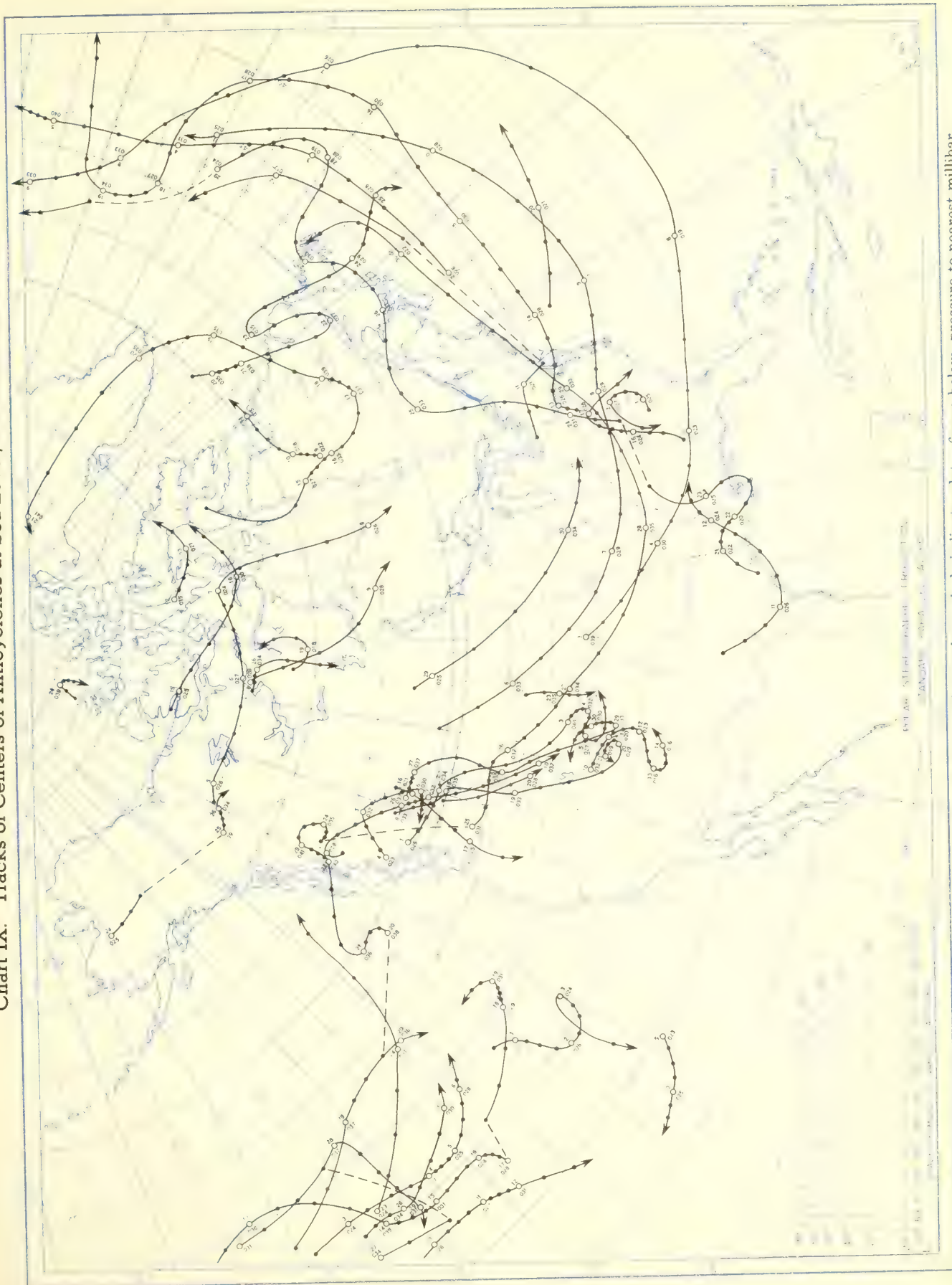


Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm. <sup>-2</sup>). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown. Normals are estimated for stations having at least 0 years of record.



Chart IX. Tracks of Centers of Anticyclones at Sea Level, November 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



Chart X. Tracks of Centers of Cyclones at Sea Level, November 1952.

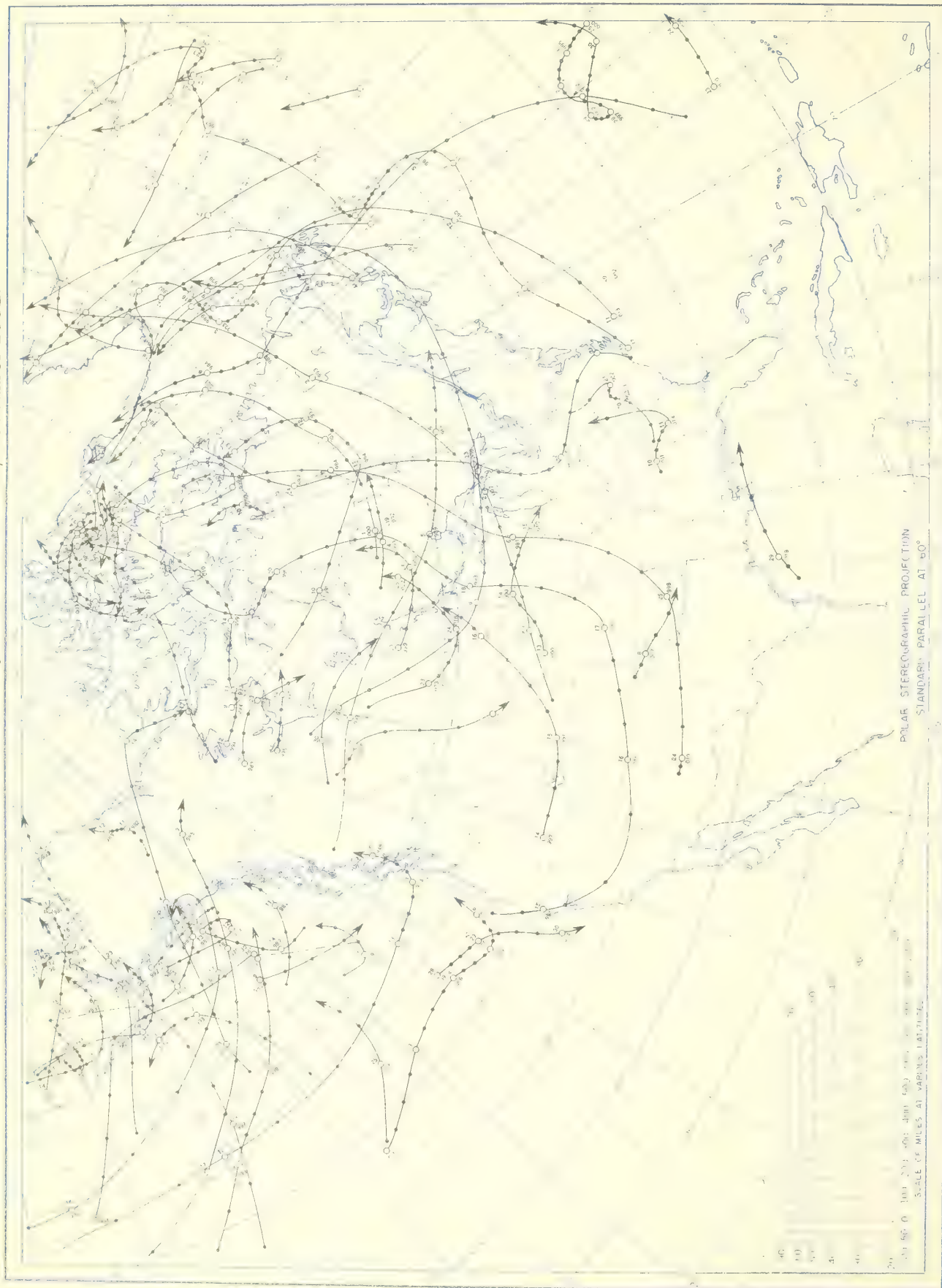
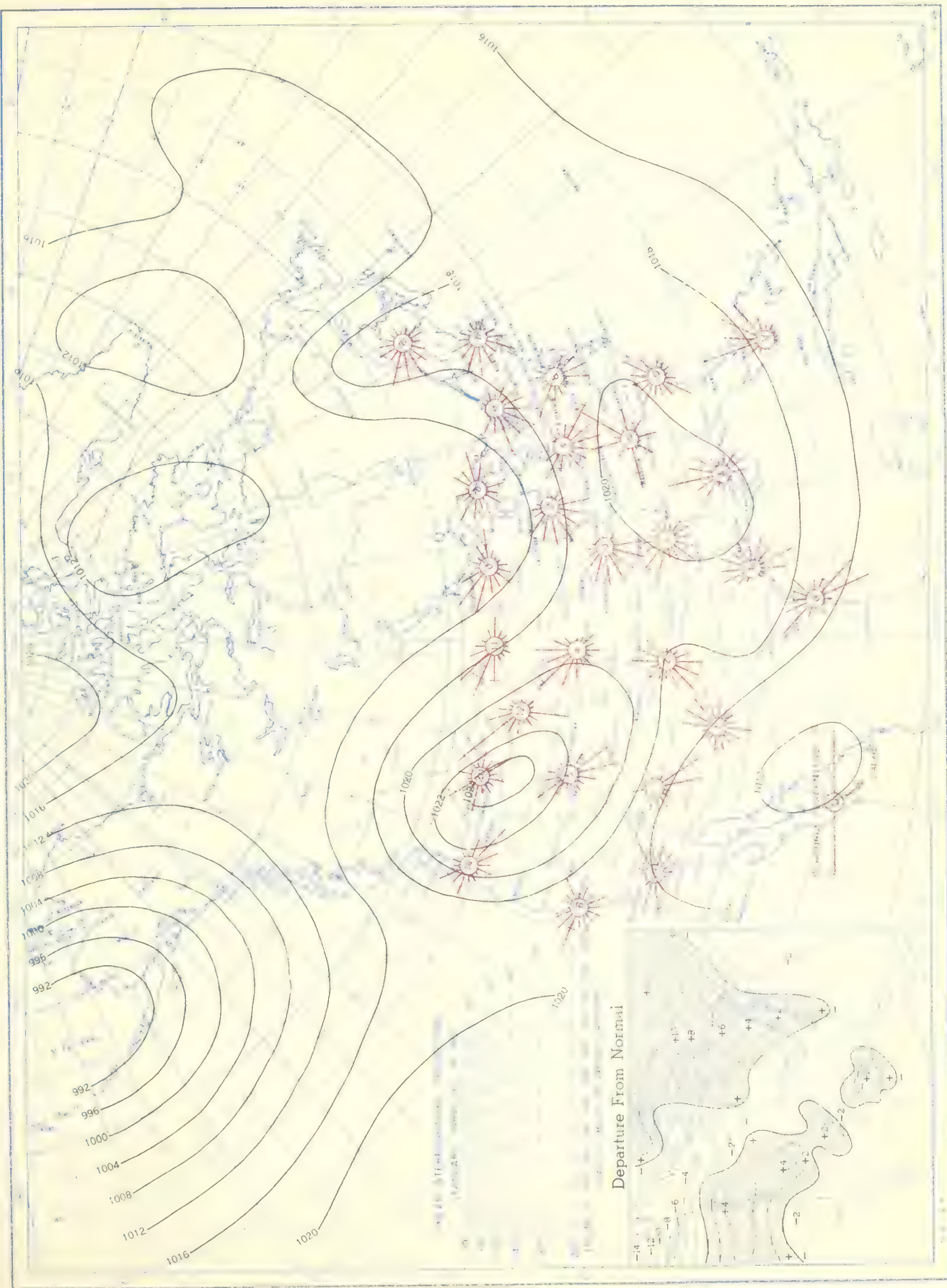


Chart XI. Average Sea Level Pressure (mb.) and Surface Wind Speed (knots) at Various Latitudes, November 1952.



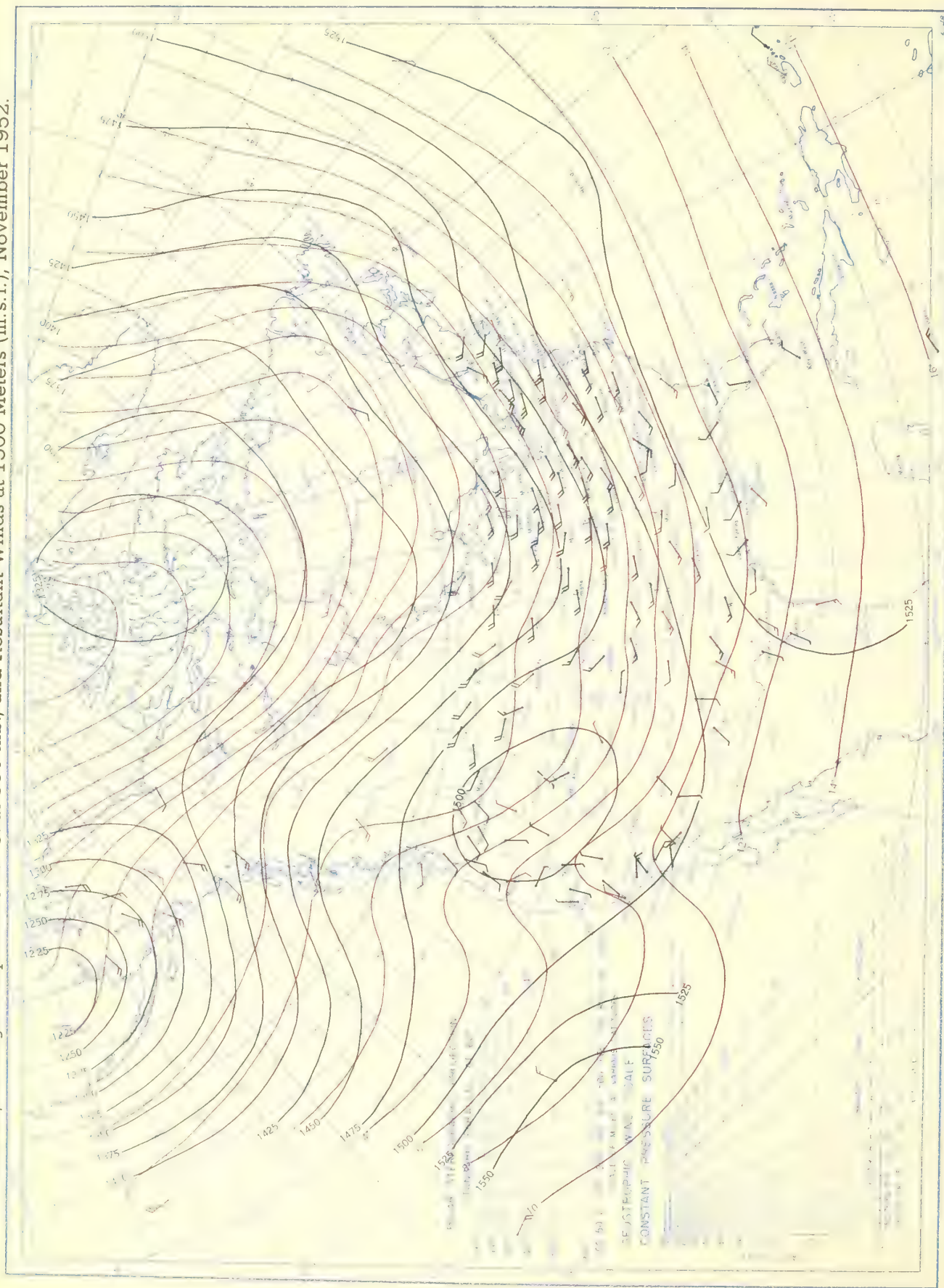
Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, November 1952.  
Average Pressure (mb.) from Normal, November 1952.



Average sea level pressures are obtained from the averages of the 7:30 a.m. and 7:30 p.m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.



Chart XII. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 850-mb. Pressure Surface, Average Temperature in °C. at 850 mb., and Resultant Winds at 1500 Meters (m.s.l.), November 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawinsonde observations at 0800 G. M. T.



those shown in red are based on rawins taken at 0.300 G. M. 1.

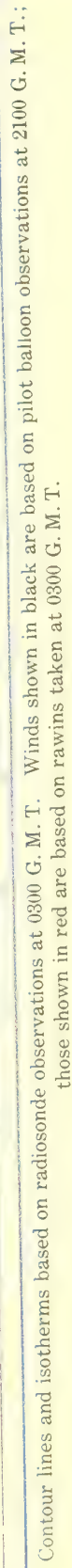
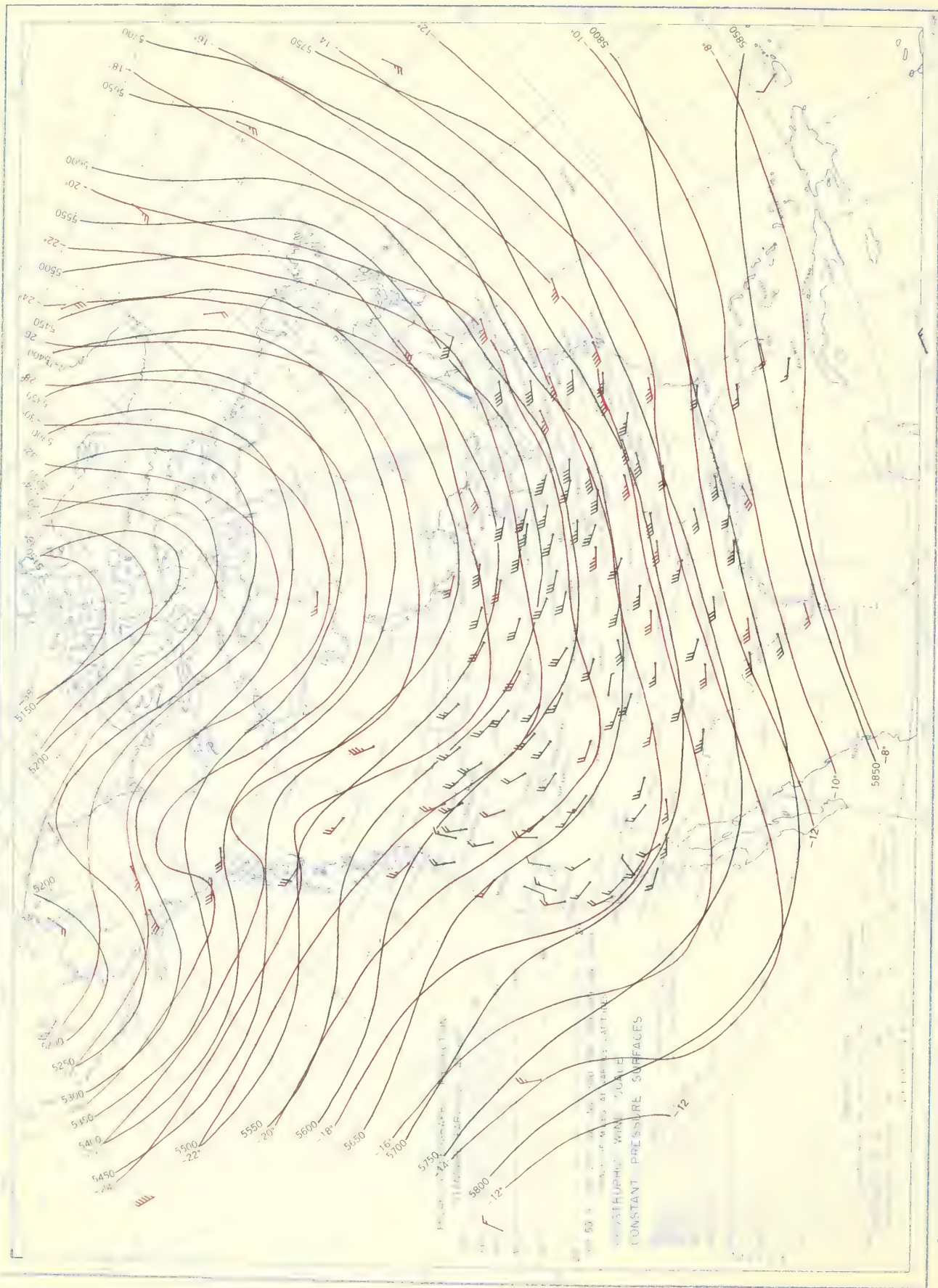




Chart XIV. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 500-mb. Pressure Surface, Average Temperature in °C. at 500 mb., and Resultant Winds at 5000 Meters (m.s.l.), November 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T. ; those shown in red are based on rawins at 0300 G. M. T.







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WEATHER BUREAU

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

DECEMBER 1952  
Volume 3 No. 12





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NOTE:—This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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## CLIMATOLOGICAL DATA

### NATIONAL SUMMARY

Volume 3 No. 12

DECEMBER 1952

#### GENERAL SUMMARY OF WEATHER CONDITIONS

December 1952 was notably free from severe winter weather. Mild temperatures, a general absence of severe storms, and little snowcover over large areas afforded unusual opportunity for most outdoor activities and resulted in a considerable saving of feed stocks and fuel. The Nation-wide precipitation average was above normal for the second consecutive month. In the Pacific Northwest and lower Great Plains, additional moisture and moderate temperatures improved the outlook for winter grains. Sunshine was very deficient along the Pacific Coast (Eureka, Calif., 24 percent of normal) and in the Midwest (Cincinnati, Ohio, 41 percent of normal), but was near normal in most other areas.

**PRECIPITATION.**—The most important rainfall occurred in the Pacific States where soil moisture had been depleted by subnormal rainfall since June. Monthly totals ranged up to 27.92 inches in Washington, 22.86 in Oregon, and 30.77 inches in California. Mendocino, Calif., recorded 10.09 inches in 24 hours. In northern California along the Northwestern Pacific Railroad's coastal route from San Rafael to Eureka, heavy rains caused 50 landslides which halted traffic for a time; and heavy rains in the central coastal areas during the first week caused locally heavy flood damage. This December was among the wettest on record in the Central Valley of California. The monthly total for Sacramento was the greatest since 1940, for Bakersfield since 1937, and for Fresno it was the fifth greatest on record.

Precipitation was also unusually heavy in parts of Pennsylvania and New York, with the greatest amounts falling from about the 9th to the 15th. Monthly totals in these States ranged up to 9.08 inches in New York and 8.81 in Pennsylvania. A 24-hour amount of 4.99 inches at Mt. Pocono, Pa., was among the greatest one-day falls ever recorded in the State for December. In New York State heavy rains and heavy snow-melt on the 10th and 11th caused damaging floods in the Salmon and Black River Valleys. Thousands of acres of farm lands were inundated, hundreds of rural homes were isolated, entire communities were without power for brief intervals, and many secondary roads and a few major highways were closed for several days. Some flooding occurred also along the Chemung, Susquehanna, and Mohawk Rivers; and in the Catskills, the Adirondacks, and the Delaware River Basin many small streams went out of their banks.

Heavy rainfall and floods also occurred in Arkansas. On the 3d and 4th from 3 to 6 inches of rain fell in the Little Red River Basin, 2 to 5 inches in the White and Ouachita River Basins, and 3 inches or more in the Arkansas River watershed between Morrilton and Little Rock. Flood damage along the Little Red was estimated at a quarter of a million dollars. On the 3d a flash flood along the south fork of the Saline River 7 miles north of Hot Springs caused several

thousand dollars damage to buildings and equipment on the campus of South Central Bible College.

**TEMPERATURE.**—East of the Continental Divide unseasonably mild weather prevailed almost continuously near the Northern Border, and average temperatures for the month generally ranged from 4° to 7° above normal. In Michigan the lowest temperature of -9° was the highest December minimum for that State since 1923. This was the first December since 1918 that the thermometer did not drop to zero at Minneapolis, Minn. Ice on lakes and streams generally was thinner than usual.

In contrast, the month was slightly colder than normal in most southern areas, particularly in the Southeast where freezes were frequent and minimum temperatures occasionally were as low as those in the Lake Region. The temperature fell to 32° or lower on 16 mornings at Augusta, Ga., and on 9 mornings at Tallahassee, Fla. During a cold period in Florida from the 12th through the 17th, frost severely damaged beans and took a lesser but locally important toll of other tender crops. A freeze in southern California on the 22d and 23d made orchard heating necessary in colder districts of the Los Angeles area.

In a belt extending from southern Michigan to the southern Appalachians, lowest temperatures occurred during the first 3 days; in the Southeast, the Dakotas, and the Mississippi Valley as far north as Davenport, Iowa, about midmonth; and in most other sections of the Country during the last week. Bondurant, Wyo., recorded the month's lowest temperature, -44°, on the 26th. Temperatures were highest in the northern Great Plains during the first week, from eastern New York and southern New England to North Carolina on the 10th and 11th, in the central Great Plains and far West from the 10th to the 16th, and elsewhere generally on the 8th or 9th. The highest temperature recorded during the month was 90° at Brawley, Calif., on the 14th.

**SNOWFALL.**—The heaviest and probably most important snowfall of the month took place in the Sierra Nevada and northern mountains of California, where record or near record monthly totals for December occurred. At eleven stations in this State totals exceeded 100 inches; the greatest was 179.0 inches at Snow Laboratory followed by 162.7 inches at Soda Springs. Stations with new record totals for December included Canyon Dam with 105.5 inches (previous record 77.5 inches in 1931), Lake Spaulding with 115.5 inches (previous record 93.8 inches in 1921), and Mt. Shasta with 137.7 inches (previous record 107.0 inches in 1891). In the northern mountain areas 7 trains with 1,300 passengers on the Southern Pacific Railroad were delayed from 13 to 31 hours by heavy, drifting snow. At Black Butte in the Siskiyou Mountains north of Dunsmuir, snow was reported 4 to 6 feet deep on the level and 16 to 18 feet in drifts.

In the lower Cascade Mountains of Oregon also



# GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

DECEMBER 1952

snowfall was heavy, although no new records were set. Crater Lake reported a depth of 84 inches on the 10th and a monthly total of 165 inches.

The heaviest snowstorm east of the Rocky Mountains occurred on the 11th and 12th in eastern New York and northern New England where, up to 24 inches fell. Communications were disrupted, and in northern Vermont several communities were isolated. Several stations in northern New Hampshire and Vermont reported monthly totals ranging from 30 to 40 inches. In the central interior monthly totals in parts of Kansas, Nebraska, and Wisconsin were much above normal owing to heavy falls during storms on the 19th and 20th and on the 22d and 23d. During the first of these storms freezing rain preceded the snow in large sections of the central Great Plains and upper Mississippi Valley, causing minor damage in northwestern Oklahoma and locally severe damage in southern and eastern Iowa and southern Wisconsin. The second storm extended the snowcover in the western Great Plains far enough south for northwestern Oklahoma and much of the Texas Panhandle to experience a "white Christmas". In Iowa the ice from the storm of the 19th and the new snow of the 22d remained on the trees and ground through the Christmas season, making the Christmas scene in that State (as described by the Meteorologist in Charge at Des Moines) one of the most beautiful on record.

**DESTRUCTIVE STORMS.**—December storm losses were not unusual. On the 9th the worst tornado of the month injured three persons and caused over \$500,000 damage along a 30-mile path that began near Owensboro, Ky., and ended beyond Tell City, Ind. On the 3d another tornado injured four persons and caused losses of \$15,000 near Trinity, Tex.

Also on the 9th, hail resulted in injury to three persons and property damage of \$100,000 at Lepanto, Ark., and some minor damage at Terre Haute, Ind. High winds estimated at 100 m.p.h. blew down a television tower with a loss of \$50,000 near Salt Lake City, Utah, on the 5th. On the 6th and 7th high winds in northern California resulted in the death of four persons and some minor damage. Peak gusts up to 100 m.p.h. in north coastal areas and 88 m.p.h. at Sacramento were reported to have occurred during this storm.

On the 19th and 22d snow and glaze damaged power and communication lines in Manchester and Des Moines, Iowa, to the extent of \$50,000. Heavy losses from this storm also occurred in other sections of eastern and southern Iowa and in southern Wisconsin. Heavy snow in eastern New York and northern New England on the 11th and 12th was responsible for the death of at least 10 persons, and \$150,000 damage in northern New England and an undetermined amount of damage in New York.



# CONDENSED CLIMATOLOGICAL SUMMARY

Table 1

DECEMBER 1952

Section	Temperature								Precipitation							
	Average	Departure from normal	Monthly extremes								Monthly extremes					
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least		
	°F	°F		°F			°F		In.	In.		In.			In.	
Alabama	46.5	-1.2	2 Stations	80	9	Alexander City GNE	14	29	5.99	+1.04	Mobile WB AP	9.35	Fort Morgan		2.07	
Arizona	40.7	-2.2	do	82	14	Maverick	-24	24	.94	-.37	Pinal Ranch	3.04	2 Stations		.08	
Arkansas	42.7	-1.1	Crossett	80	9	Lead Hill	12	13	3.66	-.53	Searcy	7.97	Fayetteville		1.21	
California	44.5	-1.1	Indio U.S. Date Garden	90	14	Boca	-20	23	6.90	+3.23	Cazadero	30.77	El Centro		.14	
Colorado	24.3	-1.7	Eversoll Ranch	70	15	Walden	-37	25	.57	-.37	Wolf Cr. Pass 4W	2.97	Genoa		.00	
Connecticut	33.3	+3.2	2 Stations	62	11	Norfolk 2SW	-4	28	3.75	-.07	Mead Pond Res.	6.04	Washington		1.46	
Delaware	38.0	+1.2	3 Stations	66	10	Millsboro	8	29	3.62	+2.20	Millsboro	4.24	Newark Col. Farm		3.21	
Florida	58.4	-1.6	Punta Gorda	86	3	3 Stations	20	15	1.37	-1.40	DeFuniak Springs	6.08	Lake Trafford		.00	
Georgia	46.9	-1.5	Bainbridge	83	8	Blairsville Exp.Sta.	11	14	4.15	-.01	Goat Rock	8.20	Brusswick		1.20	
Idaho	27.9	+1.6	Three Creek	61	15	Grouse	-30	26	2.08	+1.12	Deadwood Dam	6.31	Swan Falls P.H.		.29	
Illinois	34.2	+3.0	Albion	69	9	Stockton	7	27	2.12	-.03	Brookport Dam 52	4.63	Edwardsville		1.02	
Indiana	34.8	+3.1	2 Stations	69	9	Cambridge City	5	1	2.58	-.14	Jeffersonville	5.47	Albion		1.27	
Iowa	26.2	+1.8	Fort Madison	63	11	Sibley	-15	27	1.19	+1.10	Ottumwa	3.11	Sioux Rapids		.18	
Kansas	31.4	-1.5	Elkhart	70	16	Burr Oak	-7	27	.84	-.01	Stockton 9N	1.80	Beardsley		.04	
Kentucky	39.5	+1.7	3 Stations	73	9	Hindman Sett. Sch.	9	29	3.87	+0.03	Clermont 1SSE	6.27	Campbellsville		1.03	
Louisiana	51.4	-1.5	2 Stations	83	4	Chatham	16	15	5.61	+2.26	Homer Exp. Station	14.72	Quarantine		1.73	
Maine	26.5	+4.4	4 Stations	48	6	Fort Kent 1SE	-18	31	4.82	+1.50	North Bridgton	8.35	Squa Pan Dam		1.93	
Maryland	37.3	+2.0	Friendsville 4NNW	70	9	Oakland	-3	28	3.31	+1.14	Prettyboy Dam	5.21	Luke		1.72	
Massachusetts	33.0	+2.9	Springfield	62	11	Pittsfield WB AP	-4	28	3.91	+3.32	Jefferson	5.44	Swampscott		2.72	
Michigan	30.0	+5.3	Allegan Sewage Pl.	62	9	2 Stations	-9	1	1.88	-.05	Mancelona	3.54	Eagle Harbor		.68	
Minnesota	21.1	+5.8	Tracy Power Plant	50	11	Big Falls Ranger Sta.	-19	19	.32	-.44	Caledonia	1.55	2 Stations		.07	
Mississippi	47.6	-1.7	3 Stations	79	9	Houston 1S	10	16	5.30	+2.02	Gulfport AP	11.04	Rosedale		2.45	
Missouri	35.8	+1.9	2 Stations	73	8	Maryville	0	27	1.85	-.33	New Madrid	4.71	Fairfax		.50	
Montana	25.1	+2.1	Woccasin Exp. Sta.	67	15	Wisdom	-34	26	.39	-.36	Heron 2NW	4.36	6 Stations		.00	
Nebraska	26.3	-1.9	2 Stations	65	16	4 Stations	-11	25	.72	+0.05	Friend	2.09	Stratton		.T	
Nevada	33.4	+1.0	North Las Vegas Doxarm	75	13	Fish Creek Ranch	-17	24	.88	-.06	Carson City	2.42	Basalt		.06	
New Hampshire	27.4	+4.2	Surry Mt. Dam	56	12	Fabyan	-14	31	5.65	+2.55	Pinkham Notch	9.17	North Stratford		2.87	
New Jersey	36.5	+2.7	Runnemead	64	10	Layton 3NW	3	4	4.23	+6.3	Lakeswood 2ENE	6.36	Canton		2.21	
New Mexico	33.4	-2.0	White Sands NM	76	16	Gavilan	-25	4	.43	-.32	Villanueva	2.10	2 Stations		.00	
New York	30.0	+3.2	2 Stations	64	9	2 Stations	-20	28	3.84	+8.5	Phoenixia	9.08	Barker 4NE		1.21	
North Carolina	41.9	-1.7	Williamston 1ESE	76	10	Mt. Mitchell	2	15	3.27	-.52	Coweeta No. 8	8.67	Elizabethtown Lk.2		1.21	
North Dakota	19.3	+5.3	2 Stations	56	15	Langdon Exp. F.	-16	18	.17	-.31	Wahpeton State Sch.	.72	6 Stations		.00	
Ohio	35.1	+3.4	Ironton	74	11	Barnesville Wtr.Wks.	0	1	2.65	-.07	Milford	4.44	Carrollton 2SW		1.30	
Oklahoma	39.5	-1.1	Smithville	78	8	Freedom	0	25	1.17	-.56	Broken Bow	4.41	Comanche		.00	
Oregon	34.0	-1.3	Powers	68	12	Fremont	-21	23	5.23	+9.7	Ilalhe 1N	22.86	Enterprise		.49	
Pennsylvania	33.3	+2.1	Newell	73	10	Coudersport 1NNE	-12	27	3.41	+3.30	Mt. Pocono 2N AP	8.81	Williamsburg		1.54	
Rhode Island	35.0	+2.0	Providence WB City	58	11	2 Stations	7	28	3.44	-.38	Austin	4.85	Block Is. WB AP		2.71	
South Carolina	44.8	-1.9	Yemassee 4W	80	10	Caesars Head	11	15	3.26	-.28	Caesars Head	5.98	Beaufort 7SW		1.63	
South Dakota	24.6	+2.6	2 Stations	65	15	Midland	-16	25	.24	-.27	Wilmot	1.29	Lodgepole		.00	
Tennessee	41.1	+1.3	Moscow	77	9	Gatlinburg 2SW	10	29	3.57	-.98	Charleston	6.09	Perryville		1.08	
Texas	47.0	-1.0	McAllen	89	11	Dalhart Exp. Sta.	-2	27	2.17	+1.13	Hillsboro	8.00	Littlefield		.00	
Utah	28.2	+1.1	St. George P.H.	68	15	Woodruff	-20	26	.98	-.12	Alta	5.61	Partoun		.00	
Vermont	25.7	+3.5	Saint Johnsbury	61	11	Lemington	-23	31	4.21	+1.43	Marshfield	6.17	Cillao		1.97	
Virginia	38.1	+2.2	Suffolk-Lake Kilby	74	10	Burkes Garden	2	1	2.97	-.13	Glenns 1S	5.01	Goshen		1.45	
Washington	34.8	+1.2	2 Stations	68	12	Deer Park	-5	25	5.02	+0.04	Quinault RS	27.92	Sunnyside		.67	
West Virginia	35.8	+1.2	Brownsville	77	9	Kumbrabow St.Forest	-5	28	2.81	-.47	Pickens 1	5.08	Franklin		1.35	
Wisconsin	25.1	+5.0	Racine	58	11	Couderay 3N	-15	27	1.22	-.03	Brodhead	2.91	Superior Bong AP		.10	
Wyoming	24.0	+1.7	Metz Ranch	65	15	Bondurant	-44	26	.57	-.20	Snake River	4.65	7 Stations		.00	
*Alaska	31.0	+2.4	Matanuska Vly 9	69	2	Umiat WB AP	-18	23	3.58	+6.3	Little Port Walter	40.17	Barrow WP AP		.18	
**Hawaii	71.3	+1.1	Puunene CAA AP	92	5	Kole Kole	30	28	7.91	+1.39	Puohokamos	35.64	Kihel		.00	
Puerto Rico	72.9	-1.4	Coloso	93	11	Utuaño	50	9	1.98	-2.34	Rio Blanco (1800 ft)	11.65	Coamo Dam (10)		.00	

° Other dates also.  
 \* October 1952.  
 \*\* November 1952.



## CLIMATOLOGICAL DATA

DECEMBER 1952

Table 2

State and station	Elevation (ground)	Pressure		Temperature										Precipitation						Wind				No. of days									
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		to sunset						
												Max. 90° F or above	Min. 32° F or below						0.1 inch or more	With thunderstorms	Total	Max. depth on ground			Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine	
Ft	Mb.	Mb.	°F	°F	°F	°F	°F	°F	°F	°F	%	In.	In.	In.							M. p. h.		M. p. h.			0-3	4-7	8-10	0-10	%			
ALABAMA																																	
Anniston	599	-----	1020.4	55.31	43.1	----	74	9 16	29	0	17	35	----	6.48	+1.42	3.24	13	3	0.0	0	6.5	E	*33	E	4	9	8	14	6.2	--	--		
Birmingham	610	994.9	1021.0	55.35	45.0	+0.9	73	9 21	29	0	12	35	71	4.96	-.18	1.68	13	1	.0	0	7.8	SSE	36	E	30	8	9	14	6.4	56	33		
Mobile CO	10	-----	-----	61.44	52.5	+3.2	72	8 26	15	0	2	----	----	7.20	+2.18	2.00	15	2	0	0	10.6	----	42	SW	31	8	4	19	7.0	40	56		
Mobile	211	1012.9	1021.0	62.42	52.0	----	75	8 23	15	0	4	44	78	9.35	----	3.23	14	3	0	0	10.5	N	----	----	----	7	10	14	6.5	----	----		
Montgomery CO	201	-----	-----	57.40	48.5	----	76	9 22	15	0	5	----	----	6.95	+2.11	1.66	12	5	0	0	-----	----	----	----	----	7	10	14	6.5	----	----		
Montgomery	198	1013.2	1021.1	58.38	47.5	-1.9	76	9 22	15	0	10	39	77	7.18	+2.34	1.58	12	5	.0	0	5.3	W	27	W	10	8	5	18	6.5	48	48		
ARIZONA																																	
Flagstaff	6993	786.7	1022.6	40.13	26.3	----	53	15-11	24	0	31	----	----	1.06	----	.32	9	1	14.2	10	-----	----	----	----	----	11	6	14	5.6	----	----		
Phoenix CO	1083	-----	-----	64.41	52.7	+7.7	76	12 33	24	0	0	----	----	.51	-.49	.26	5	0	.0	0	5.2	----	25	W	20	----	----	----	----	----	75	----	
Phoenix	1108	978.7	1018.5	65.37	51.0	----	79	15 31	26	0	5	37	65	.68	-.32	.35	5	0	.0	0	3.7	E	*24	S	20	15	8	8	4.4	----	----		
Prescott	5014	848.0	1019.9	50.24	37.4	----	64	13 11	24	0	28	24	64	.88	----	.64	5	1	4.3	3	8.7	SW	24	SE	17	13	9	9	4.8	64	64		
Tucson	2558	927.9	1017.5	63.37	50.1	-6.5	75	15 28	24	0	6	31	54	.73	-.27	.30	6	0	.0	0	5.7	WSW	40	SE	5	16	5	10	4.5	81	81		
Winslow	4880	853.4	1021.0	45.22	33.3	-2.0	53	15 14	24	0	29	24	71	.19	-.38	.08	5	0	.4	2	4.9	SSE	*34	WSW	20	11	7	9	5.0	----	----		
Yuma	203	1012.9	1018.0	68.43	55.4	----	82	14 36	6	0	0	36	53	.97	----	.69	5	0	.0	0	6.9	NNE	33	NW	30	18	7	6	3.5	83	83		
ARKANSAS																																	
Fort Smith	458	1002.4	1019.6	51.31	40.7	-1.4	71	8 19	28	0	21	32	78	1.67	-1.09	.56	6	0	T	T	8.4	W	24	SW	17	10	8	13	5.5	45	45		
Little Rock	257	1006.1	1019.6	53.35	44.0	-.1	74	8 24	15	0	14	36	76	5.39	+1.25	3.13	7	3	T	0	8.5	WNW	*40	E	19	7	10	14	6.3	50	79		
Texarkana	361	1006.1	1020.0	55.37	45.6	-2.0	77	8 23	15	0	8	37	77	4.10	-.76	1.53	6	2	T	0	8.9	WNW	*35	NNE	30	10	9	12	5.7	50	79		
CALIFORNIA																																	
Bakersfield	489	1002.4	1020.7	59.40	49.2	+1.1	70	26 33	22	0	0	41	78	1.80	+.94	.59	9	0	.0	0	3.7	NE	*30	WNW	5	6	10	15	6.7	----	----		
Beaumont CO	2589	-----	-----	56.38	47.0	----	72	14 30	25	0	5	----	----	3.77	----	1.15	8	0	.0	0	-----	----	----	----	----	14	3	14	5.4	----	----		
Bishop	4108	874.7	1018.0	51.22	36.8	----	68	13 10	6	0	30	----	----	1.15	----	.52	8	0	1.0	1	-----	----	----	----	----	10	8	13	5.6	----	----		
Blue Canyon	5286	837.8	1017.3	41.30	35.2	----	68	13 18	3	0	23	----	----	19.62	----	3.94	18	0	154.1	53	-----	----	----	----	----	4	5	22	8.1	----	----		
Burbank	699	991.9	1018.5	64.43	53.5	----	82	12 35	26	0	0	38	62	3.58	----	1.33	9	1	T	T	4.1	SE	*33	NNW	21	13	6	12	4.7	----	----		
Eureka CO	43	1014.2	1016.6	53.43	48.2	----	59	16 36	23	0	0	----	----	11.87	+5.59	2.93	25	2	.0	0	8.5	----	51	SW	6	2	27	8.9	10	----	----		
Fresno	331	1007.5	1019.7	55.39	46.9	+1.8	67	10 31	22	0	1	42	86	4.05	+2.60	1.10	12	0	.0	0	6.0	SE	26	NW	5	3	5	23	7.8	46	64		
Los Angeles CO	312	-----	-----	64.48	56.1	----	83	13 42	22	0	0	----	----	3.31	+6.8	1.13	9	3	T	T	6.8	----	31	N	21	13	5	13	4.9	64	64		
Los Angeles	99	1014.2	1018.1	64.46	55.3	----	83	13 39	22	0	0	44	69	2.28	----	.70	8	1	T	0	5.8	E	149	S	1	14	7	10	4.6	----	----		
Mt. Shasta CO	3543	891.0	1017.7	39.26	32.2	-2.6	52	15 11	23	0	29	----	----	17.34	+11.58	4.17	20	2	137.7	52	-----	----	----	----	----	4	3	24	8.2	----	----		
Oakland	3	1018.3	1018.8	56.44	49.9	+2.1	63	10 35	21	0	0	46	85	5.81	+2.35	1.59	15	0	.0	0	6.5	SE	*38	WSW	7	3	7	21	7.8	----	----		
Red Bluff	341	1005.4	1018.2	50.40	45.0	---	61	15 31	23	0	3	41	87	10.09	+5.69	2.24	19	0	T	0	9.5	NW	60	SE	6	2	4	25	8.7	28	11		
Sacramento	17	1018.0	1019.0	53.41	46.9	+7.7	62	10 31	21	0	3	43	88	7.10	+4.07	1.69	15	0	.0	0	12.0	SSE	70	SE	7	1	5	25	9.0	11	----		
Sandberg CO	4517	863.5	1019.3	45.33	38.7	----	61	14 25	23	0	18	29	71	3.02	----	1.35	7	0	9.0	5	22.0	ENE	----	----	----	12	6	13	5.5	----	----		
San Diego	19	1015.2	1018.3	64.41	56.4	+7.9	81	12 41	29	0	0	43	64	2.20	+3.3	.79	8	0	T	T	4.9	N	21	SW	30	15	8	4	4.5	71	----		
San Francisco CO	52	-----	-----	56.47	51.6	+3.3	63	10 44	16	0	0	----	----	9.06	+5.11	2.01	17	0	.0	0	7.7	----	34	S	6	3	9	19	7.7	35	----		
San Francisco	1	1018.0	1018.7	56.45	50.4	+2.5	64	10 39	3	0	0	46	84	9.34	+5.37	1.94	16	0	T	0	8.7	SE	50	SSW	1	2	7	22	7.9	----	----		
Santa Catalina	1568	961.1	1018.1	57.48	52.6	----	77	14 43	26	0	0	----	----	3.77	----	1.52	11	0	.0	0	-----	----	----	----	----	13	9	9	4.7	----	----		
Santa Maria	231	1011.2	1019.8	61.41	50.8	----	78	12 35	6	0	0	43	77	4.13	----	1.10	11	1	.0	0	8.0	E	*33	SSE	1	14	5	12	5.4	----	----		
COLORADO																																	
Alamosa	7534	770.7	1029.0	28.7	10.6	----	39	13-20	6	0	31	----	----	.15	----	.07	3	0	2.5	3	-----	----	----	----	----	13	11	7	4.2	----	----		
Colorado Springs	6175	808.7	1019.7	45.17	30.8	----	67	16-1	24	0	31	10	47	.13	----	.12	3	0	1.8	2	10.6	N	*44	N	11	14	9	8	4.6	----	----		
Denver	5292	834.4	1017.4	45.21	32.6	+2.7	64	15 4	25	0	31	16	56	.19	-.21	.07	5	0	3.1	4	7.7	S	*31	W	8	11	9	11	5.2	58	53		
Grand Junction	4849	862.2	1023.7	37.19	28.0	+5.5	46	21 9	29	0	30	20	72	.56	-.07	.27	6	0	7.2	4	4.9	ENE	25	SE	10	5	9	17	6.9	51	79		
Pueblo	4799	855.7	1019.2	47.16	31.8	+1.7	69	15 -7	25	0	31	15	58	.35	-.15	.28	4	0	4.8	4	7.7	WNW	36	SE	7	14	7	10	4.6	57	53		
CONNECTICUT																																	
Bridgeport	7	1017.6	1018.4	43.29	36.1	+3.5	57	11 8	28	0	21	27	69	3.13	+0.5	1.66	7	0	5.0	3	12.1	ENE	*30	NW	27	9	8	14	6.3	----	----		
Hartford	15	1012.5	1018.5	42.26	33.9	+4.1	61	11 4	28	0	27	25	71	3.77	-.20	2.09	9	0	2.2	2	8.5	NNE	35	SE	11	5	12	14	6.7	44	49		
New Haven	6	1013.9	-----	42.29	35.3	----	55	11 7	28	0	23	----	----	3.10	-.60	1.32	9	0	5.0	3	9.1	----	34	E	5	6	11	14	6.5	49	49		
DELAWARE																																	
Wilmington	73	1015.2	1018.6	45.30	37.4	+2.3	58	10 15	28	0	18	29	72	3.61	+6.2	1.30	11	0	2.8	1	8.8	WNW	-----	----	----	7	9	15	6.5	----	----		
FLORIDA																																	
Apalachicola CO	13	1018.6	1020.0	62.47	54.4	-1.3	73	2 30	15	0	1	----	----	1.26	-3.86	.47	8	0	T	T	7.5	----	30	WSW	31	12	6	13	5.3	48	48		
Beach	33	1019.6	1020.5	68.45	56.7	-2.3	80	25 30	16	0	2	48	80	.71	-2.03	.26	7	0	.0	0	6.9	NW	*30	WSW	31	12	7	12	5.4	----	----		
Fort Myers	15	1019.3	1020.0	74.30	62.3	-2.7	82	25 37	16	0	0	53	78	.71	-.85	.31	3	0	.0	0	7.7	E	*30	SSW	31	16	8	7	4.4	----	----		
Jacksonville CO	18	-----	-----	65.46	55.4	----	77	9 31	16	0	2	----	----	.92	-2.10	.41	5	0	.0	0	-----	----	----	----	----	----	----	----	----	----	----	----	
Jacksonville	12	1019.6	1020.7	65.42	53.3	----	77	10 28	16	0	5	43	73	1.27	-1.75	.76	6	0	.0	0	8.0	WNW	36										



## CLIMATOLOGICAL DATA

Table 2-Continued

DECEMBER 1952

State and station	Elevation (ground)	Pressure		Temperature										Precipitation						Wind				No of days (sunrise to sunset)										
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile		to sunset)							
												Max 90° F or above	Min 32° F or below						0.1 inch or more	With thunderstorms	Total	Max depth on ground			Prevaling direction	Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine	
ft	mb	mb	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	%	in	in	in	in	in	in	p. h.	p. h.			0-3	4-7	8-10	%						
INDIANA																																		
Evansville	385	1003.1	1019.3	45	32	38.5	+3.7	66	9	15	28	0	17	31	79	3.09	-0.45	1.50	12	1	4.5	4	10.5	SSW	30	SW	8	5	5	21	7.8	31		
Fort Wayne	801	984.8	1016.9	38	28	32.9	+4.3	64	9	12	28	0	26	28	87	1.75	-.83	1.56	12	1	4.9	3	8.7	WSW	23	S	8	4	4	23	8.1	25		
Indianapolis	796	987.8	1017.9	41	29	34.9	+4.0	65	9	13	28	0	22	30	86	3.01	+0.03	1.00	14	1	6.9	5	12.1	W	29	W	12	3	8	20	7.9	29		
South Bend	768	987.8	1016.8	37	27	31.9	+4.5	68	8	14	3	0	24	27	86	1.97	-.27	.86	14	0	10.0	4	11.4	SW	26	SSW	26	4	0	27	8.3	29		
Terre Haute	585	996.6	1018.3	42	29	35.4	+2.9	65	9	14	28	0	22	30	87	2.74	-.19	.93	12	1	4.5	4	8.7	S	27	S	8	5	7	19	7.4	28		
IOWA																																		
Burlington	605	990.9	1017.5	38	25	31.3	+4.0	61	8	15	15	0	30	25	82	1.88	-.46	1.16	6	0	3.3	3	11.4	WNW	38	NW	11	7	6	18	7.2	40		
Charles City CO	1013	978.7	-----	30	18	24.1	+3.7	40	7	0	27	0	30	---	---	.84	-.25	.46	---	---	---	6.2	---	21	SE	3	5	5	21	7.6	27			
Davenport CO	579	994.9	-----	37	26	31.6	+4.5	58	8	17	14	0	25	---	---	2.02	-.54	1.19	8	0	3.3	3	---	---	---	---	---	---	---	---	---	---		
Des Moines	800	985.4	1018.0	34	21	27.3	+1.3	52	16	4	27	0	30	23	86	1.15	-.07	.55	7	0	6.2	5	11.3	NW	56	W	11	7	4	20	7.0	38		
Dubuque	641	976.0	1016.6	32	21	26.6	---	48	8	8	25	0	30	23	---	---	2.12	-.19	1.19	9	0	8.0	4	---	*30	SW	26	5	3	23	7.9	---		
Sioux City	1097	974.9	1018.1	33	14	23.3	+1.7	53	7	7	27	0	31	17	81	.58	-.32	.35	3	0	8.9	9	7.9	NW	37	NW	11	8	9	14	6.5	54		
KANSAS																																		
Concordia CO	1375	966.8	-----	37	21	28.7	-2.0	57	16	4	27	0	28	---	---	.85	+.22	.51	4	0	5.9	5	7.1	---	26	NW	11	16	4	11	4.2	64		
Dodge City	2594	928.2	1018.9	40	21	30.5	-2.1	63	16	3	25	0	30	20	72	.75	+.18	.45	5	0	6.7	7	12.6	NW	34	N	11	16	5	10	4.5	69		
Goodland	3645	887.2	1018.7	38	14	25.9	-4.0	55	5	-5	14	0	31	17	77	.36	-.27	.29	5	0	5.0	4	11.8	NW	34	NW	9	15	7	9	4.4	---		
Topeka	926	981.7	1018.9	40	23	31.4	---	58	16	7	27	0	28	25	82	1.28	---	.73	4	0	6.9	4	9.8	W	29	NW	11	13	2	16	5.7	51		
Wichita	1372	968.5	1018.8	40	26	33.0	-1.6	60	8	11	27	0	26	25	79	1.09	+.09	.59	5	0	.5	3	12.0	NW	29	SW	6	14	3	14	5.5	56		
KENTUCKY																																		
Lexington	979	982.4	1019.1	45	32	38.3	+2.5	68	9	17	28	0	16	29	73	3.58	-.19	1.35	12	1	2.1	1	13.7	S	---	---	---	5	3	23	7.9	---		
Louisville CO	457	-----	-----	45	35	40.0	+2.4	66	9	22	28	0	14	---	---	5.24	+1.50	1.97	9	1	3.0	2	---	---	---	---	---	---	---	---	---	---		
Louisville	485	1001.7	1018.4	45	33	39.2	+2.9	66	9	15	28	0	16	31	75	4.67	+.93	1.75	10	1	3.7	2	9.2	S	47	SW	9	5	4	22	7.9	20		
LOUISIANA																																		
Baton Rouge	64	1017.6	1018.8	63	43	52.7	---	79	9	25	15	0	5	43	76	5.64	+.05	1.51	12	3	.0	0	7.9	SE	---	---	---	9	5	17	6.3	---		
Lake Charles	12	1019.0	1020.3	62	45	53.2	-2.2	78	9	28	15	0	3	45	81	8.79	+3.16	4.66	9	5	.0	0	9.6	N	---	---	---	8	5	18	6.7	---		
New Orleans CO	12	1018.3	-----	64	49	56.3	+7.9	79	9	34	15	0	0	---	---	6.62	+1.83	4.57	16	2	.0	0	---	---	---	31	SW	30	7	8	16	6.5	52	
New Orleans	12	1018.3	1020.2	64	45	54.3	---	79	9	29	16	0	2	46	79	6.86	---	3.94	15	2	.0	0	9.7	NE	32	SSW	30	7	9	15	6.2	---		
Shreveport	174	1010.8	1020.5	57	39	48.1	-1.2	77	8	22	15	0	6	39	76	5.24	+.95	1.99	8	2	T	0	9.1	WNW	---	---	---	12	3	16	5.7	65		
MAINE																																		
Caribou	624	993.9	1017.7	22	12	17.1	+3.9	41	12	-12	31	0	31	13	77	2.23	-.29	1.39	6	0	16.7	14	9.9	WSW	*28	E	6	9	7	15	6.4	---		
Eastport CO	33	1014.2	1017.3	35	25	29.9	+3.6	47	25	4	31	0	23	---	---	3.47	-.27	1.67	9	0	8.7	6	12.6	---	49	E	6	5	7	19	7.2	32		
Portland	61	1012.9	1017.0	37	23	30.1	+5.3	48	6	9	31	0	24	24	78	5.28	+1.31	1.89	8	0	2.2	1	9.4	WSW	48	E	5	7	6	18	6.7	48		
MARYLAND																																		
Baltimore CO	14	-----	-----	46	35	40.7	+3.5	59	10	20	28	0	9	---	---	3.70	+.33	1.27	8	---	---	---	---	---	---	---	---	---	---	---	---	---		
Baltimore	146	1014.2	1019.2	45	31	37.9	+1.3	59	11	16	29	0	16	28	71	3.47	+5.52	1.23	10	0	3.0	3	10.6	---	W	38	NW	11	7	9	15	6.6	41	
Frederick	294	-----	-----	43	28	35.1	+1.1	59	10	12	1	0	23	---	---	2.58	-.34	.74	10	1	4.0	2	---	---	---	---	---	---	---	---	---	---		
MASSACHUSETTS																																		
Blue Hill Obs.	640	992.9	-----	39	26	32.4	+3.6	53	11	4	28	0	25	---	---	4.47	+.56	1.71	10	0	7.5	4	16.0	WSW	43	ESE	5	7	10	14	6.3	41		
Boston	12	1012.9	1017.6	41	30	35.7	+3.2	52	11	9	28	0	17	24	65	4.09	+.64	1.41	8	0	2.4	2	14.0	N	40	NE	22	8	5	18	6.6	46		
Nantucket	43	1016.3	1017.0	43	31	37.1	+1.3	53	11	13	28	0	18	31	77	4.74	+1.00	2.48	9	0	T	T	13.1	WNW	52	NE	22	5	7	19	7.3	42		
Pittsfield	1153	973.6	1017.6	35	22	28.5	+3.6	57	11	-4	28	0	27	---	---	2.98	-.12	1.78	13	0	6.5	3	---	---	---	---	---	---	---	6	7	18	7.3	---
MICHIGAN																																		
Alpena CO	587	992.2	-----	36	26	31.1	+6.3	57	9	10	27	0	25	---	---	1.86	-.22	.48	17	0	6.4	2	10.8	---	30	SE	4	2	5	24	8.6	23		
Detroit	619	989.5	1016.8	39	30	34.1	+5.2	56	8	15	28	0	20	29	82	1.94	-.41	.53	14	1	4.3	3	10.5	W	26	W	25	3	5	23	8.4	19		
Escanaba CO	594	992.2	-----	34	25	29.2	+6.8	49	16	6	27	0	27	---	---	1.12	-.63	.43	12	0	7.8	3	9.8	---	29	NW	13	4	6	21	7.8	28		
Grand Rapids	638	990.2	1016.2	37	26	31.3	+4.7	58	9	10	3	0	26	28	87	1.46	-.11	.59	14	0	9.5	4	9.4	WSW	26	SW	26	1	6	24	8.6	23		
Lansing	859	983.7	1016.6	37	27	31.7	+4.8	57	9	12	3	0	25	28	86	1.84	-.23	.60	16	0	5.8	3	12.8	WSW	26	W	11	3	3	25	8.3	13		
Marquette CO	677	987.1	-----	33	25	28.8	+6.2	45	8	9	27	0	28	---	---	2.67	+0.01	1.12	13	0	26.0	11	7.8	---	29	SW	28	4	2	25	8.3	22		
Muskegon	627	992.2	1016.0	36	26	31.1	+2.0	56	8	10	3	0	25	27	86	2.13	+.21	.52	16	0	15.1	8	9.0	WNW	*27	SW	28	2	4	25	8.6	---		
Sault Ste. Marie	721	991.9	1015.1	32	23	27.4	+8.6	48	9	-4	27	0	28	24	85	1.85	-.38	.78	17	0	12.7	5	9.2	E	30	NW	26	1	3	27	9.1	14		
Ypsilanti	722	987.1	1016.5	39	28	33.4	---	59	8	13	28	0	24	28	84	2.11	---	.84	11	0	4.8	3	9.7	WSW	*21	E	20	3	3	25	8.4	---		
MINNESOTA																																		
Duluth	1128	971.9	1015.9	27	15	21.2	---	39	15	7	27	0	31	17	83	.16	---	.09	6	0	1.8	4	11.3	NW	38	NW	14	6	4	21	7.6	34		
Intern'l Falls	1179	971.2	1016.4	25	10	17.2	+7.4	41	7	-14	19	0	30	13	85	.44	-.39	.10	13	0	4.4	4	8.1	---	---	---	---	---	5	5	21	7.5	---	
Minneapolis	830	982.7	1017.9	29	17	23.4	+3.8	42	8	4	27	0	31	19	83	.45	-.53	.21	6	0	6.0	8	10.4	SE	32	SE	3	6	4	21	7.6	27		
Rochester	1014	978.7	1017.5	29	16	22.5	+3.4	42	7	-5	27	0	30	18	84	.46	-.52	.17	10	0	7.3	8	9.0	NW	---	---	---	5	3	23	8.0	---		
St. Cloud	1034	977.0	1016.8	29	15	22.0	+5.5	43	8	0	27	0	31	18	85	.13	-.47	.06	6	0	1.0	3	7.6	NW	---	---	---	7	4	20	7.3	---		
St. Paul	703	985.1	1017.1	30	17	23.7	+4.7	4																										



## CLIMATOLOGICAL DATA

DECEMBER 1952

Table 2—Continued

State and station	Elevation (ground)	Pressure			Temperature										Precipitation						Wind				No. of days		Possible sunshine					
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max. 90° F or above	No. of days Min. 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days 0.1 inch or more	With thunderstorms	Snow, Sleet, Hail		Average hourly speed	Prevailing direction	Fastest mile			No. of days (sunrise to sunset)				
																					Total	Max. depth on ground			Direction	Date		Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	
																																In.
NEVADA (Cont.)																																
Ely	6257	808.3	1020.7	37 12	24.6	+0.1	49 15	-9 24	0	31	--	--	--	0.99	+0.11	0.49	10	0	7.3	3	11.9	---	61	SE	7	7	9	15	6.9	52		
Las Vegas	2162	952.3	1018.6	56 35	45.4	+2.0	70 13	26 24	0	13	28	54	4.1	-0.1	2.0	6	0	4.7	0	4.7	---	25	WSW	7	15	6	10	4.9	67			
Reno	4397	861.2	1018.3	45 23	34.0	+2.1	55 71	12 31	0	31	26	75	1.68	+0.70	1.90	11	0	6.8	4	5.9	---	61	SW	5	3	24	8.0	48				
Winnemucca	4299	867.6	1018.6	44 23	33.2	+3.2	57 15	3 24	0	30	26	74	1.71	-1.37	2.16	11	0	2.7	1	8.4	---	60	SW	7	6	3	22	7.5	37			
NEW HAMPSHIRE																																
Concord	339	1006.4	1017.6	38 19	28.7	+4.7	50 11	3 20	0	25	22	78	5.46	+2.33	7.19	7	0	5.0	4	5.9	---	36	NE	5	6	11	14	6.4	35			
Mt. Washington	6262	798.3	1016.9	18 7	12.6	+4.0	39 10	-12 27	0	31	--	--	--	10.46	+3.39	3.38	19	0	73.9	17	37.2	---	193	W	25	5	7	19	7.7	27		
NEW JERSEY																																
Atlantic City CO	8	1015.9	1018.0	46 34	40.2	+3.8	56 78	15 28	0	10	--	--	--	4.51	+0.57	1.91	8	0	T	0	17.1	---	53	NE	21	10	6	15	6.0	57		
Newark	11	1017.3	1018.4	43 31	37.1	+3.7	56 11	13 28	0	18	28	71	4.40	+0.63	1.46	7	0	8.2	4	9.6	---	30	NNW	27	8	7	16	6.6	--			
Trenton CO	56	1011.2	1018.3	44 32	37.7	+3.3	61 11	13 28	0	17	--	--	--	3.25	-1.10	1.94	8	0	2.7	2	10.1	---	33	NW	11	7	8	16	6.6	48		
NEW MEXICO																																
Albuquerque	5310	850.0	1019.4	44 23	33.7	-8	56 15	12 26	0	28	21	62	2.20	-0.26	1.11	4	0	9	1	7.4	---	31	NW	9	12	8	11	5.1	62			
Clayton	4969	843.9	1017.6	48 21	34.6	-2	67 15	4 24	0	30	--	--	--	2.25	-0.23	2.20	3	0	2.5	2	---	---	---	---	---	---	---	---	---	---	---	---
Raton	6379	802.9	1018.4	44 14	23.9	--	62 16	-3 25	0	31	--	--	--	1.19	--	1.33	3	0	3.0	2	---	---	---	---	---	---	---	---	---	---	---	---
Roswell	3612	894.3	1018.3	56 24	39.9	-1.3	68 7	15 5	0	30	19	48	0.4	-0.62	0.4	1	0	T	0	9.8	---	47	NW	9	16	8	7	3.8	--			
NEW YORK																																
Albany	277	1014.2	1018.0	38 23	30.2	-4.7	61 11	1 28	0	26	23	74	4.50	+1.89	3.22	11	0	4.0	2	7.7	---	42	NW	11	4	7	20	7.4	42			
Bear Mountain	1396	---	---	37 26	31.1	--	55 11	3 28	0	27	--	--	--	5.84	---	2.87	10	0	9.3	7	---	---	---	---	---	---	---	---	---	---	---	---
Binghamton	858	990.2	1017.1	34 23	28.7	--	55 11	3 28	0	29	23	80	3.57	--	1.51	15	0	17.7	5	13.3	---	40	NW	11	4	6	23	8.5	24			
Buffalo	693	988.2	1017.0	39 28	33.3	+4.5	62 9	4 28	0	23	28	81	2.57	-0.79	1.71	18	0	16.1	9	14.9	---	47	SW	16	0	5	26	8.9	23			
New York CO	10	1006.1	1018.0	44 33	38.4	+3.4	59 11	12 28	0	15	--	--	--	3.62	0.00	1.98	7	0	4.3	1	14.4	---	54	SE	11	10	5	16	6.4	45		
New York	19	1016.6	1018.3	44 34	39.0	--	61 11	12 28	0	11	29	68	4.57	--	1.38	9	0	4.2	2	15.3	---	52	NW	27	7	16	6.9	--				
Oswego CO	292	1004.4	1016.9	38 28	32.8	+4.7	56 10	8 28	0	20	--	--	--	3.69	+0.19	2.23	19	2	8.6	3	11.3	---	29	W	27	1	4	26	8.9	17		
Rochester	543	997.3	1017.1	39 28	33.4	+4.8	57 8	5 28	0	20	28	81	1.82	-0.90	1.00	11	0	7.5	2	11.8	---	38	W	16	0	7	24	8.7	29			
Schenectady	217	---	---	38 25	31.4	+4.9	59 11	2 28	0	26	--	--	--	4.12	+1.72	3.26	8	0	3.0	1	---	---	---	---	---	---	---	---	---	---	---	---
Syracuse	399	995.3	1018.1	38 26	31.8	+4.4	58 11	6 28	0	24	25	77	3.75	+0.67	2.18	20	0	11.1	4	11.0	---	37	W	27	2	4	25	8.7	37			
NORTH CAROLINA																																
Asheville CO	2203	---	---	49 30	39.2	+1.4	66 7	17 14	0	18	--	--	--	2.28	-0.92	1.17	9	1	1.1	T	---	---	---	---	---	---	---	---	---	---	---	---
Asheville	2093	944.1	1020.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Charlotte	753	991.2	1019.7	51 33	42.2	+7	70 9	20 15	0	17	33	75	3.97	+1.11	1.73	9	1	T	0	5.1	---	26	N	11	11	5	15	5.9	55			
Greensboro	891	987.8	1020.3	50 30	39.9	+7	69 9	16 15	0	19	31	76	4.45	+0.62	1.93	10	1	T	0	5.6	---	26	NW	11	13	4	14	5.5	54			
Hatteras	4	1018.0	1018.5	53 42	47.6	-2.5	66 10	31 29	0	2	41	81	4.17	-0.40	1.52	10	2	T	0	11.1	---	45	SW	31	9	2	20	6.7	40			
Raleigh CO	406	---	---	52 34	43.1	+1	71 9	17 29	0	11	--	--	--	2.99	-0.59	1.46	10	0	0	0	5.9	---	20	NW	11	10	4	17	6.3	42		
Raleigh	433	1003.4	1019.7	51 32	41.6	--	71 9	17 29	0	16	32	75	3.03	--	1.60	9	0	0	0	6.4	---	34	NW	11	13	3	15	5.6	--			
Wilmington	30	1017.6	1018.8	56 37	46.7	-2.4	74 9	20 29	0	8	39	80	1.11	-0.67	0.63	10	0	0	0	8.1	---	34	NW	11	13	3	15	5.6	49			
Winston-Salem	967	983.7	1019.9	51 32	41.4	+1.6	68 9	21 15	0	14	30	69	3.40	-1.12	1.29	10	0	3	T	7.2	---	21	W	4	8	10	13	6.3	65			
NORTH DAKOTA																																
Bismarck	1653	953.6	1016.5	33 8	20.4	+7.6	47 5	-4 18	0	31	13	80	1.14	-0.43	0.06	6	0	2.4	1	6.8	---	33	W	6	9	9	13	6.2	48			
Devils Lake CO	1471	960.4	---	25 8	16.6	+7.1	48 7	-7 18	0	31	--	--	--	0.06	-0.48	0.03	3	0	1.6	1	7.1	---	23	SE	2	4	10	17	6.9	49		
Fargo	895	981.0	1015.7	26 11	18.7	+7.2	40 7	-4 27	0	31	14	82	4.7	-0.25	1.12	10	0	6.3	3	11.2	---	35	SE	6	6	8	17	7.0	45			
Williston CO	1877	945.5	1015.7	32 12	21.9	+8.1	50 6	-3 13	0	31	16	81	1.10	-0.48	0.05	4	0	2.7	1	4.9	---	21	W	4	8	10	13	6.3	65			
OHIO																																
Akron	1210	979.0	1018.2	39 27	32.7	+1.9	62 9	10 28	0	24	28	83	1.87	-0.64	1.78	9	0	5.8	4	10.5	---	27	SW	14	2	3	26	8.4	--			
Cincinnati Obs.	761	---	---	43 32	37.6	+4.2	65 9	16 28	0	16	--	--	--	3.93	+0.95	1.51	14	1	5.0	4	7.4	---	20	SW	5	--	--	--	--	--	--	
Cincinnati	871	985.4	1018.4	42 31	36.4	+2.9	65 9	14 28	0	16	29	78	4.18	+1.35	1.50	15	1	8.0	3	7.2	---	27	SW	14	2	3	24	8.5	--			
Cleveland CO	663	---	---	41 32	36.6	+5.4	62 9	18 28	0	18	--	--	--	2.35	-0.09	1.84	11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Cleveland	787	988.8	1017.4	40 29	34.9	+5.8	62 9	14 28	0	21	29	81	2.70	+0.26	1.93	14	1	8.4	5	10.7	---	27	SW	14	2	4	25	8.6	21			
Columbus CO	724	---	---	41 30	35.5	+3.1	65 9	15 28	0	21	--	--	--	2.56	-0.17	1.10	1	0	3.2	3	---	---	---	---	---	---	---	---	---	---	---	---
Columbus	835	937.8	1018.9	42 29	35.3	+4.9	66 9	8 1	0	22	29	79	2.58	-0.15	1.06	13	1	3.6	3	9.0	---	28	SW	14	5	4	34	8.2	23			
Dayton	1002	980.7	1018.0	40 29	34.6	+3.3	63 9	13 28	0	21	29	83	2.71	-0.04	1.97	15	1	4.7	4	10.4	---	28	SW	29	5	3	22	8.4	24			
Sandusky CO	603	993.6	1018.0	40 29	33.1	+5.6	64 9	14 28	0	21	--	--	--	2.12	-0.22	1.02	13	1	6.2	6	9.1	---	26	SW	7	3	2	26	8.6	26		
Toledo	62																															



## CLIMATOLOGICAL DATA

Table 2—Continued

DECEMBER 1952

State and station	Elevation (ground)	Pressure		Temperature										Precipitation										Wind				No. of days		Possible sunshine		
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max. 90° F or above Min. 32° F or below	Average dew point	Average relative humidity	Total	Precipitation			Snow, Sleet, Hail	Max. depth on ground	Average hourly speed	Prevailing direction	Fastest mile		to sunset							
																Departure from normal	Greatest in 24 hours	No. of days 0.1 inch or more With thunderstorms					Speed	Direction	Date	Clear	Partly cloudy	Cloudy				
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	%	In.	In.	In.	In.	In.	M. p. h.	M. p. h.			0- 3	4- 7	8- 10	0-10 (sunrise to sunset)	%					
SOUTH CAROLINA																																
Charleston CO	11	1018.0	-----	57	43	49.9	-1.8	72	10	29	15	0	2	---	2.11	-0.61	0.75	9	1	0.0	0	8.3	---	25	W	10	11	4	16	5.9	54	
Charleston	411	1018.3	1020.1	59	37	48.0	-1.1	76	9	22	16	0	8	39	78	1.88	-.84	.69	9	0	T	0	7.2	WSW	---	---	---	---	---	---	---	
Columbia CO	332	1006.8	-----	55	38	46.3	-.9	74	9	22	15	0	7	---	---	3.41	+.38	1.24	9	1	0	0	6.9	---	---	---	---	---	---	---	---	
Columbia	217	1011.5	1020.0	56	34	44.7	---	---	---	---	---	---	---	---	---	16	36	77	3.64	---	1.30	5.2	---	---	---	---	---	---	---	---	---	
Florence	146	1013.9	1019.3	55	36	45.5	---	---	---	---	---	---	---	---	---	10	---	---	1.03	11	0	0	0	0	0	0	0	0	0	0	0	
Greenville	1006	982.1	1019.4	52	35	43.2	+1.0	67	7	20	15	0	10	33	74	4.66	-.18	1.97	10	0	T	0	6.5	SW	27	---	---	---	---	---	---	
Spartanburg	801	989.8	1019.6	52	34	42.8	+2.2	65	18	21	16	0	13	---	---	4.04	-.52	1.63	8	0	0	0	---	---	---	---	---	---	---	---	---	
SOUTH DAKOTA																																
Huron	1282	967.8	1017.0	33	14	23.5	+4.8	55	7	0	14	0	31	16	80	.09	-.48	.06	3	0	1.1	T	9.0	SSE	43	NW	11	8	9	14	6.4	43
Rapid City	3215	898.7	1016.1	42	18	30.1	+5.0	63	15	7	14	0	31	15	61	.08	-.36	.08	1	0	.7	1	8.7	NNW	50	W	11	12	9	10	5.2	64
Sioux Falls	1420	964.1	1011.2	32	13	22.4	+1.7	51	8	-9	27	0	31	14	74	.28	-.44	.12	5	0	3.7	3	9.8	NW	---	---	---	---	---	---	---	---
TENNESSEE																																
Bristol	1519	963.8	1019.8	49	29	38.8	-1.8	70	9	17	29	0	21	30	75	2.83	-1.13	1.38	10	0	.7	T	4.1	W	*18	W	12	8	6	17	6.5	---
Chattanooga	670	992.2	1020.4	52	32	41.9	+1.0	70	9	17	29	0	15	33	74	4.62	-.51	1.54	12	0	T	T	5.7	SSW	34	NNW	10	6	9	16	6.9	38
Knoxville	949	969.9	1020.4	49	32	40.8	+1.8	67	9	19	29	0	15	33	76	3.99	-.53	1.69	9	1	T	T	6.4	W	34	NW	10	6	8	17	7.1	36
Memphis CO	271	-----	51	37	44.3	---	---	---	---	---	---	---	---	---	---	2.46	-2.05	1.16	9	---	T	T	---	---	---	---	---	---	---	---	---	---
Memphis	263	1004.7	1019.7	53	35	44.0	+1.6	74	9	24	14	0	12	35	73	3.07	-.24	1.12	9	2	T	T	10.9	SSW	42	SE	4	8	7	16	6.2	49
Nashville	577	999.7	1019.8	51	34	42.2	+1.2	71	9	18	28	0	11	34	75	2.38	-1.82	.85	12	2	.1	T	7.1	SSE	26	SW	9	3	13	15	7.0	49
TEXAS																																
Arlene	1752	956.7	1018.9	57	34	45.6	+5.7	76	8	23	15	0	15	31	65	.84	-.50	.84	1	0	.0	0	10.3	SSW	37	S	21	18	6	7	4.0	70
Amarillo	3590	888.9	1017.8	49	25	37.0	+1.5	70	16	10	24	0	30	23	66	.50	-.30	.38	5	0	4.7	5	10.5	SW	47	W	8	16	6	9	4.3	71
Austin	515	998.3	1020.7	60	41	50.4	-6.7	78	8	24	15	0	4	40	75	3.15	+.49	1.89	10	4	.0	0	8.6	S	29	NW	19	12	4	15	5.6	51
Big Spring	2533	928.5	1018.6	58	34	45.5	+1.7	75	8	22	25	0	12	29	62	.92	+.11	.92	1	0	.0	0	11.0	S	---	---	---	---	---	---	---	---
Brownsville	16	1016.3	1018.9	70	52	61.4	+2.2	83	9	39	15	0	0	54	83	.62	-1.25	.25	8	0	.0	0	10.6	NNW	32	SE	18	12	4	15	5.9	48
Corpus Christi	40	1019.0	1019.9	67	48	57.7	+1.2	84	9	35	15	0	0	49	80	.67	-.78	.31	10	0	.0	0	11.5	SSE	36	NW	30	8	8	15	6.1	47
Dallas	487	1001.0	1020.1	56	37	46.4	-1.3	77	8	25	15	0	8	36	73	3.06	+.70	1.61	7	0	.0	0	7.7	NW	35	NW	18	15	3	13	4.9	55
Del Rio	957	984.8	1019.5	63	40	51.7	-.5	76	8	30	5	0	2	37	65	.56	-.13	.21	7	2	.0	0	6.0	NW	45	NW	30	15	5	11	4.7	64
El Paso	3920	883.2	1018.1	57	31	44.1	+4.6	65	8	19	5	0	21	24	49	.15	-.37	.10	2	1	T	T	9.9	NNE	50	SW	31	17	7	7	3.5	81
Fort Worth	688	994.6	1020.0	56	38	46.6	+1.1	77	8	26	15	0	5	35	71	2.49	+.62	1.12	6	1	.0	0	12.7	NW	*56	W	18	14	4	13	5.1	---
Galveston CO	7	-----	61	50	55.5	---	---	---	---	---	---	---	---	---	---	2.89	+.86	1.19	8	0	.0	0	11.9	---	---	---	---	---	---	---	---	---
Galveston	7	1019.6	1020.3	61	50	55.3	-1.1	72	9	34	15	0	0	48	81	3.35	-.40	1.02	9	4	.0	0	11.4	N	---	---	---	---	---	---	---	---
Houston CO	41	1014.9	-----	62	47	54.6	+2.2	78	11	30	15	0	1	---	---	4.36	+.13	1.17	10	4	.0	0	9.9	---	---	---	---	---	---	---	---	---
Houston	41	1017.6	1020.5	63	45	53.7	-1.1	79	8	25	15	0	1	45	76	5.53	+.64	1.62	10	3	.0	0	10.9	NNE	---	---	---	---	---	---	---	---
Laredo	500	1003.7	1019.2	67	41	57.2	+6.8	86	8	36	15	0	0	44	69	.59	-.72	.39	6	0	.0	0	10.7	NE	---	---	---	---	---	---	---	---
Lubbock	3238	903.8	1018.0	55	25	40.3	-.5	71	11	14	25	0	28	21	61	.06	-.73	.04	2	0	T	T	13.0	W	35	N	9	17	8	6	3.9	---
Palestine CO	491	1001.4	-----	57	41	49.0	---	---	---	---	---	---	---	---	---	4.55	+.88	2.09	6	3	.0	0	7.5	---	---	---	---	---	---	---	---	---
Port Arthur CO	5	1018.6	-----	60	47	53.6	-1.1	75	8	28	15	0	2	---	---	7.19	+.96	3.51	9	5	.0	0	11.8	---	---	---	---	---	---	---	---	---
Port Arthur	5	1019.3	1020.2	62	43	52.6	---	---	---	---	---	---	---	---	---	4.46	8.6	7.10	---	---	---	---	8.8	NNE	---	---	---	---	---	---	---	---
San Angelo	1903	950.9	1019.3	60	36	47.7	+8.7	78	11	24	15	0	11	31	61	.56	-.66	.56	2	0	.0	0	9.3	---	---	---	---	---	---	---	---	---
San Antonio	782	994.6	1019.9	62	41	51.6	-2.1	78	8	26	15	0	4	39	70	3.67	+2.06	2.06	9	3	.0	0	7.7	NW	45	NW	30	12	5	14	5.7	51
Victoria	109	1015.2	1019.9	64	45	54.7	-1.8	80	8	28	15	0	1	46	78	1.65	-1.07	.47	11	2	.0	0	8.8	---	---	---	---	---	---	---	---	---
Waco	504	1001.0	1020.0	57	39	47.9	-2.0	78	8	23	15	0	4	40	77	4.14	+.13	1.92	6	2	.0	0	7.3	S	---	---	---	---	---	---	---	---
Wichita Falls	1027	981.7	1019.3	54	32	43.1	-1.9	74	8	21	14	0	18	30	67	1.14	-.40	1.13	2	1	.0	0	9.6	NW	35	NW	9	16	4	11	4.5	---
UTAH																																
Mt. Ford	5028	847.3	1020.9	43	18	30.7	+2.9	56	15	-2	24	0	30	---	---	.44	-.34	.23	7	0	2.4	1	---	---	---	---	---	5	6	20	7.3	---
Salt Lake City	4227	868.6	1020.6	40	24	32.0	+1.8	53	12	9	26	0	26	25	78	1.16	-.24	.34	8	0	14.1	5	8.7	SE	43	S	7	5	7	19	7.4	35
VERMONT																																
Burlington	331	1002.4	1017.4	34	20	26.9	+2.5	54	11	-9	31	0	29	21	76	4.12	+2.24	2.32	13	0	20.2	10	9.6	S	33	S	11	2	8	21	7.9	29
VIRGINIA																																
Cape Henry CO	16	1017.6	1018.3	49	38	43.8	+1.1	64	10	25	29	0	6	---	---	3.06	-.38	1.48	8	0	T	0	12.8	---	42	NW	11	10	5	16	6.1	49
Lynchburg	947	983.7	1019.5	47	30	38.8	+1.5	65	9	16	29	0	16	28	69	3.12	-.14	1.43	10	1	1.1	1	7.1	N	31	SE	10	11	6	14	5.8	53
Norfolk CO	11	1015.6	1019.1	52	38	44.7	+1.6	71	10	24	28	0	5	---	---	3.23	-.11	1.45	8	0	T	0	8.3	---	33	NW	11	---	---	---	---	---
Norfolk	25	1018.0	1019.1	51	36	43.2	+1.9	72	10	22	29	0	10	34	73	3.17	-.17	1.43	9	0	T	T	8.2	SW	---	---	---	---	---	---	---	---
Richmond CO	162	-----	49	32	40.6	---	---	---	---	---	---	---	---	---	---	2.90	-.39	1.15	8	---	T	T	---	---	---	---	---	---	---	---	---	---
Richmond	160	1012.9	1019.4	49	30	39.2	+1.4	65	10	14	29	0	20	31	76	3.37	---	1.48	8	1	T	0	6.8	NNW	28	E	31	9	6	16	6.3	45
Roanoke	1174	976.0	1019.5	48	31	39.5	-.4	64	9	16	1	0	19	27	66</																	



## CLIMATOLOGICAL DATA

Table 2-Continued

DECEMBER 1952

[illegible]

Data from airport unless otherwise specified. CO indicates data from city office.

\* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

Other dates also.

Peak gust.

† Sun below horizon November 19th through 30th.

Max. 70°F. or above for Alaskan stations.



# HEATING DEGREE DAYS

(Base 65° F.)

DECEMBER 1952

Table 3

State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month	State and station	Current season			Long term mean July through this month
	This month	Period July through this month	Period July through this month			This month	Period July through this month	Period July through this month			This month	Period July through this month	Period July through this month			This month	Period July through this month	Period July through this month	
ALABAMA					IOWA					NEW MEXICO					TEXAS (Cont'd.)				
Birmingham	613	1274	1016		Burlington	1037	2309	2261		Albuquerque	965	1852	1790		Brownsville	157	253	249	
Mobile (CO)	386	759	612		Charles City (CO)	1258	2838	2944		Clayton	937	2165	1933		Corpus Christi	244	406	366	
Mobile	402	774			Davenport (CO)	1028	2227	2353		Raton	1111	2705			Dallas	571	1062	935	
Montgomery (CO)	510	932	828		Des Moines	1162	2516	2443		Roswell	770	1603	1510		Del Rio	406	668	644	
Montgomery	539	1044	838		Dubuque	1186	2791	2641							El Paso	642	1148	1075	
ARIZONA					Keokuk (CO)	959	2041			NEW YORK					Ft. Worth	561	1011	901	
Flagstaff	1190	2943	2871		Siox City	1285	2756	2680		Albany	1071	2527	2463		Galveston (CO)	288	439	416	
Phoenix (CO)	378	614	558		KANSAS					Bear Mountain (CO)	1043	2377			Galveston	297	500		
Phoenix	429	681			Concordia (CO)	1118	2223	2072		Blighman	1115	2699	2553		Houston (CO)	327	596		
Prescott	851	1668			Dodge City	1060	2122	1966		Buffalo	975	2336	2458		Houston	352	643	512	
Tucson	456	731			Goodland	1201	2659	2222		New York (CO)	821	1661	1861		Laredo	251	416		
Winslow	974	2004			Topeka (CO)	1010	2048	1946		La Guardia Field	799	1572			Lubbock	761	1598		
Yuma	294	162	428		Topeka	1038	2114			Oswego (CO)	939	2267	2527		Palestine (CO)	492	912	823	
ARKANSAS					Wichita	984	1918	1778		Rochester	973	2303	2435		Port Arthur (CO)	353	633	518	
Ft. Smith	715	1528	1256		KENTUCKY					Schenectady	1036	2408			Port Arthur	381	718		
Little Rock	645	1359	1192		Lexington	819	1856	1821		Syracuse	1022	2325	2521		San Angelo	527	989		
Texarkana	595	1192			Louisville (CO)	767	1430	1667							San Antonio	411	722	562	
CALIFORNIA					Louisville	791	1771			NORTH CAROLINA					Victoria	318	564		
Bakersfield	131	820	870		Pikeville (CO)	769	1542			Asheville (CO)	793	1750	1625		Waco	522	952		
Beaumont (CO)	552	1034			LOUISIANA					Asheville	840	1945			Wichita Falls	673	1228		
Bishop	868	1721	1722		Baton Rouge	381	776	606		Charlotte	701	1368	1283		UTAH				
Blue Canyon	919	1996			Lake Charles	364	707			Greensboro	771	1614	1539		Midford	1058	2417		
Burbank	352	660			New Orleans (CO)	278	520	474		Haiters	532	873	916		Salt Lake City (CO)	952	1972	2179	
Eureka (CO)	513	2136	2091		New Orleans	296	569			Raleigh (CO)	674	1303	1271		Salt Lake City	1014	2196	2378	
Fresno	554	954	954		New Orleans	296	569			Raleigh	715	1444			VERMONT				
Los Angeles (CO)	281	495	141		Int. Airport, Morant	3361	669			Wilmington	561	1021	913		Burlington	1174	2685	2930	
Los Angeles	299	614			Shreveport	519	1045	856		Winston-Salem	725	1482			VIRGINIA				
Mt. Shasta (CO)	1009	2122			MAINE										Cape Henry (CO)	649	1197	1189	
Oakland	460	1092	1196		Caribou	1422	3674			Bismarck	1374	3242	3514		Lynchburg	803	1685	1576	
Red Bluff	613	1003	1046		Eastport (CO)	1082	2759	3120		Devils Lake (CO)	1493	3564	4057		Norfolk (CO)	621	1388	1198	
Sacramento (CO)	537	941	997		Greenville (CO)	1325	3408	3616		Fargo	1430	3378	3633		Norfolk	670	1312		
Sacramento	553	1048			Portland	1073	2665	2700		Grand Forks	1461	3550	3870		Richmond (CO)	751	1470	1471	
Sandberg (CO)	806	1506			Portland	1073	2665			Pemba	1110	3435			Richmond	792	1588		
San Diego	259	453	500		MARYLAND					Williston (CO)	1329	3174	3656		Roseboro	735	1672	1616	
San Francisco (CO)	408	1416	1326		Baltimore (CO)	747	1176	1622							WASHINGTON				
San Francisco	417	1332	1354		Baltimore	833	1780			Akron	994	2392	2340		Ellensburg	1069	2597		
San Jose	428	849			Frederick	920	2083			Cincinnati (CO)	793	1700	1842		Kelso	732	2048		
Santa Catalina	339	820			MASSACHUSETTS					Cincinnati	873	1995			North Head (CO)	622	2138	2145	
Santa Maria	431	1237			Boston	901	1928	2113		Cleveland (CO)	875	1952	2197		Olympia	777	2241		
COLORADO					Milton	1010	2258			Cleveland	929	2126			Port Angeles	656	2467		
Alamosa	1679	3861			Nantucket	858	1901	1917		Columbus	913	2135	2065		Seattle (CO)	609	1578	1784	
Colorado Springs	1052	2615			Pittsfield	1124	2800			Dayton	935	2151	2080		Seattle	714	2107		
Denver	1000	2116	2255		MICHIGAN					Sandusky (CO)	905	2018	2202		Spokane	1069	2517	2625	
Grand Junction	1142	2254	2289		Alpena (CO)	1044	2733	3006		Toledo	987	2288	2320		Stampede Pass (CO)	1198	3516		
Pueblo	1023	2370	2227		Detroit	953	2242	2424		Youngstown	994	2392		Tacoma (CO)	654	1863	2041		
CONNECTICUT					Escanaba (CO)	1102	2388	3211		OKLAHOMA					Tellico Island (CO)	619	2476	2553	
Bridgeport	898	1893			Grand Rapids (CO)	980	2344	2178		Oklahoma City (CO)	795	1483	1404		Walla Walla (CO)	826	1892		
Hartford	955	2138	2234		Grand Rapids	1037	2564			Oklahoma City	797	1495			Yakima	1002	2377	2392	
New Haven	912	2003	2218		Lansing	1028	2578	2670		Tulsa	763	1538			WEST VIRGINIA				
DELAWARE					Marquette (CO)	1116	2990	3248		OREGON					Charleston	778	1776		
Wilmington	818	1854			Muskegon	1044	2542			Baker (CO)	1111	2663	2928		Elkins	703	1978	2275	
DIST. OF COLUMBIA					Sault Ste. Marie	1157	3181	3435		Burns (CO)	1191	3082			Huntington (CO)	712	1563		
Washington (CO)	783	1570	1696		Ypsilanti	975	2316			Eugene	719	1924			Parkersburg (CO)	826	1860	1891	
Washington	803	1625			MINNESOTA					Medford	812	1819	1915		Petersburg	898	1935		
FLORIDA					Duluth (CO)	1318	3564	3665		Pendleton	836	2112			WISCONSIN				
Apalachicola (CO)	323	545	164		Duluth	1347	3617			Portland (CO)	854	1502	1711		Green Bay	1215	3046	2946	
Dunthwaite Beach	256	364			International Falls	1476	3967			Portland	718	1739			La Crosse	1236	2790		
Fort Myers	123	147	101		Minneapolis	1284	2956	3044		Roseburg (CO)	704	1751	1723		Madison (CO)	1135	2602	2766	
Jacksonville (CO)	293	458	439		Rochester	1308	3158			Salem	736	1906			Madison	1158	2733		
Jacksonville	356	543			St. Cloud	1324	3414	3441		Sexton Summit (CO)	939	2065			Millwaukee (CO)	1027	2378	2591	
Key West (CO)	22	22	12		St. Paul	1274	2929	3041		Troutdale	727	1662			Millwaukee	1061	2527		
Key West	28	28			MISSISSIPPI					PENNSYLVANIA					WYOMING				
Melbourne	180	226			Jackson	503	1070	880		Allentown	945	2144			Casper	1132	2890		
Miami (CO)	58	69	53		Meridian	540	1148	906		Eric (CO)	896	2039	2211		Cheyenne	1079	2907	2948	
Int. Airport, Hialeah	49	57			Vicksburg (CO)	476	982	817		Harrisburg	848	1971	2011		Lander	1287	3043	3354	
Miami Beach	38	42			MISSOURI					Park Place (CO)	1088	2537			Rock Springs (CO)	1310	3149		
Orlando	209	277			Columbia	927	1987	1930		Philadelphia (CO)	785	1577	1701		Rock Springs	1344	3232		
Pensacola (CO)	342	628	551		Kansas City	950	1392	1891		Philadelphia	814	1726			Sheridan	1103	2792		
Tallahassee	384	641			St. Joseph	1055	2199	2045		Pittsburgh (CO)	853	1836	1990						
Tampa	209	270	207		St. Louis (CO)	832	1685	1727		Pittsburgh	933	2110	2149						
West Palm Beach	77	92</																	



Table 4

DECEMBER 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Trinity and Walker Counties, Tex.	3	6:15 p.m.	100	15	0	4	\$15,500		Tornado	Injuries were in Kittrell community, about 10 miles northwest of Trinity. Damage occurred also in Walker County. 13 homes destroyed; 10 homes damaged; 20 other buildings destroyed.
Coon Peak (about 17 miles southwest of Salt Lake City), Utah	5	4:43 p.m.					50,000		Winds	High winds at about 9,000 feet m.s.l. of unknown intensity blew down tallest TV tower in United States. It belonged to KSL-TV and was located on top of Coon Peak in Oquirrh Mountains. Wind speed estimates ranged up to 100 m.p.h., with gusts higher. Tower designed to withstand much stronger winds; failure finally attributed to 1 section which had seen previous service.
Lepanto, Ark.	9	1:30 p.m.	*2	6		3	100,000	Negligible	Hail and rain	A severe hailstorm struck Lepanto, causing a loud roar as it moved in from southwest. Stones weighing as much as 5½ ounces reported. Most severe damage was to high and elementary schools, where a total of 226 windowpanes broken. Severe damage in other parts of town, mostly to windows, roofs, and automobiles. Since most crops had been harvested, crop damage was negligible. 3 school children injured by flying glass.
Daviess and Hancock Counties, Ky.	9	3-4 p.m.	880	32 total in both States	0	3	200,000	\$50,000	Tornado and hail	Tornado apparently started in West Louisville, Daviess County, moved into Hancock County and crossed the Ohio River into Indiana in vicinity of Tell City, moving northeastward. Storm accompanied by hail described as big as "guinea eggs". Cloud described as "funnel shaped puff of smoke". 3 homes, numerous barns, and smaller structures destroyed; several buildings unroofed; trees uprooted; and communications and power lines blown down. Damage given is for Kentucky only.
Tell City, Ind.	9	3:50 p.m.		32 total in both States	0	0	300,000	0	Tornado, hail, and rain	Storm moved from southwest of Owensboro, Ky., to Tell City, Ind., causing a path of destruction extending in northeastward direction. (Same tornado as reported for Kentucky). Reports indicate tornado was followed by heavy rain, and hail as "large as guinea eggs" (some reports said as large as baseballs). At least 2 persons in vicinity of Owensboro reported seeing a funnel cloud. An estimated 85 percent of damage by wind, remainder by hail. Hail broke hundreds of windows, damaged roofs, battered finish of automobiles, etc. Wind leveled buildings, mostly out-buildings, but unroofed many residences and business establishments, twisted TV antennae, etc. Damage given is for Indiana, only.
Northern Vermont (from Barre north) and adjacent portions of New Hampshire	11-12	Mid-afternoon, 11th-near midnight, 12th			10		150,000		Snow	Heavy wet snow; near-record volume over a 3,500-square mile area of extreme northern Vermont where 2 feet of snow accumulated. Many communities isolated, as power and telephone lines snapped from weight of snow and roads became impassable. Severe damage to trees reported, and about 500 telephone poles downed. 9-car rescue train from Boston sent into area, with trucks, equipment, and repair crew to help reestablish communications; also, 75 truckloads of other telephone equipment and personnel assisted.
Stroudsburg and Easton areas, Pa.	11								Rains	Heavy rains caused sharp rises in streams which flooded a power plant, several highways, and many cellars. Sudden torrents of water damaged some small bridges.
Florida, northern portion	14								Snow and sleet	Trace of snow or sleet at or near Pensacola, Crestview, DeFuniak Springs, Quincy, Carrabelle, Tallahassee, St. Marks, Monticello, Madison, Mayo, Live Oak, Lake City, Glen St. Mary, and Hilliard. Frozen precipitation occurred before noon at most points, but occurred in the afternoon at Mayo and Lake City and near Hilliard. Temperatures above freezing, and snow or sleet melted as it fell.
Wisconsin, extreme southern portion	19				1		Several thousand		Glaze (ice)	Power and telephone services disrupted in Iowa, Green, Rock, and Walworth Counties. Roads very slippery throughout area. 1 person killed when car skidded on icy road. In City of Monroe light and telephone services badly disrupted, and many tree limbs broken.
Iowa, in interior of southeastern portion	19		*80-100	200-250			No estimate		do	Glaze 1/4 inch thick. Severe damage to power and telephone lines in Des Moines, Oskaloosa, Knoxville, Grinnell, Pella, Montezuma, New Sharon, Belle Plaine, and Manchester. Air, bus, and rail traffic delayed or cancelled. Numerous minor accidents on highways. In northwestern Iowa, snow fell to depth of 6 inches.

See footnotes at end of table.



# SEVERE STORMS

Table 4-Continued

DECEMBER 1952

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
San Fernando Valley, Calif.	20								Tornado	A small tornado moved across north end of San Fernando Valley, uprooting trees and causing other minor damage. Another partially developed tornado passed over Weather Bureau Office at Burbank, accompanied by gusty surface winds and hailstones of from 1/2 to 3/4 inch in diameter.
Pennsylvania, central portion	31	Evening			4	50	Not available		Snow and freezing rain (ice)	Snow mixed with rain plus temperatures near or below freezing created hazardous highway conditions, with accidents causing 4 deaths, and at least 50 injuries. Slush reached depth of 6 inches in some sections.
Philadelphia- Allentown area, Pa.	31	Evening			1	6	Not available		do	Snowfall, ranging up to 2 inches, plus freezing rain created hazardous driving conditions, with frequent temporary traffic jams on ice-coated hills. 1 person killed and at least 6 injured in highway accidents.

• Miles instead of yards.



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

DECEMBER 1952

The most important flooding during December occurred on the Russian River in California. On the Atlantic Slope, the Delaware River reached its highest stage since 1942, at Easton, Pa. Severe flooding occurred on Perkiomen Creek at Graterford, Pa. In the Arkansas Basin, the Cimarron River at Perkins, Okla., averaged the lowest of record for December.

**ATLANTIC SLOPE DRAINAGE.**—The heavy precipitation on the 11-12th caused minor flooding in the lower reach of the Baker and the Pemigewasset Rivers around Plymouth, N. H. The precipitation ranged from 2 inches in the lower portions to 3 inches in the central portions to over 5 inches in the upper portions of these rivers. From 1 to 2 inches of the precipitation in the upper portion occurred as snow during the later hours of the storm. No damage of any consequence resulted from the flooding.

The heavy rains on the 12th and 13th caused a sharp rise in the Connecticut River but stages remained a little below flood stage at all stations.

Small streams in southeastern New York rose to above flood stage from the heavy rains on the 11th and 12th but only minor damages resulted. Considerable flooding occurred in the flash flood streams throughout the eastern slopes of the Catskills where 5 to 6 inches of rain fell in about 36 hours. North of the Mohawk Valley and the Albany area the rain changed to snow with as much as 20 inches of snow on the ground in the Adirondacks.

The precipitation over the Lehigh River which resulted in some flooding averaged 3.3 inches over the basin and fell mostly between the hours of 8 p.m. on the 10th and 11 a.m. on the 11th. No significant damage resulted from the overflow.

In the Schuylkill River Basin the precipitation averaged 2.4 inches and caused light flooding in the reach from Norristown, Pa., to Fairmount Dam (Philadelphia, Pa.). In the Perkiomen Creek area, flooding was quite severe and it was the second consecutive month that the stage at Graterford, Pa., exceeded flood stage by more than 5 feet. In the Delaware River Basin, the crest at Easton, Pa., (25.4 ft.) was the highest since the flood of May 24, 1942. The greatest damage in the Easton area was caused by the backing of the flood waters into Bushkill Creek and into the Lehigh River, which resulted in the flooding of basements in private homes and in a few business establishments. Damage along Perkiomen Creek was confined to flooding of summer cottages.

Light flooding occurred in the Susquehanna, Chenango and Chemung Rivers in New York from the rain on the 11-12th which averaged about 2 inches. Most of the precipitation during the storm occurred in six hours or less. No damage resulted.

**Upper Mississippi Basin.**—The Mississippi was partially frozen during the month of December but rather mild conditions promoted large open areas below the tailwater of each dam. There were frequent periods of floating ice with shore ice predominating most of the month. Stream flow declined gradually. The necessity for more water in the St. Louis area caused pools to be drawn down just below normal pool stages.

**Ohio Basin.**—No flooding occurred along the main streams in the Ohio Basin during December. The only flooding reported was on First Creek in Knoxville, Tenn., where flood stage was slightly exceeded at the Fifth Avenue gage.

**Arkansas Basin.**—The Arkansas River remained at low stages throughout the month. At Tulsa, Okla., the mean monthly stage was 0.2 foot or 1.5 feet below normal, the second lowest of record (−0.1 foot in 1939). On the Cimarron River, the mean monthly stage at Perkins, Okla., was 3.1 feet, 1.5 feet below normal or the lowest of record for December.

**Red Basin.**—The flooding on the Ouachita and Little Red Rivers in Arkansas was due to the moderate to heavy rains on the 3rd and 4th. The precipitation averaged between 3 and 6 inches over the Little Red River and between 2 and 5 inches in the upper Middle Ouachita River Basin. The streams rose rapidly from the heavy rains. On the south fork of the Saline River a sudden flash flood occurred at the Campus of the South-Central Bible College, 7 miles north of Hot Springs, Ark., at 4:30 p.m. on the 3rd. Several buildings were inundated causing several thousands of dollars in damages to buildings and equipment. Several students were made homeless. The light flooding on the Sulphur River in Tex., was due to heavy rain (1 inch) on Nov. 30th. No damages were reported.

**WEST GULF OF MEXICO.**—The only flooding reported was on the upper Sabine River at Mineola, Tex., on the 2nd, 6th and 25th. As the month ended the Sabine was bankfull at Gladewater, Tex., but falling. Damage was negligible.

**PACIFIC SLOPE DRAINAGE.**—Moderate flooding occurred on the Russian River on the 7-8th from heavy rain on the 6-7th, which began during the evening of the 6th and continued throughout the night. The rainfall totaled more than 3 inches at several stations and caused a rapid rise in the river. The Corps of Engineers estimates the total damage at \$160,000, with most of it due to erosion of agricultural lands.

This same storm caused the Eel River to overflow at Fernbridge, Calif., on the 7th and 8th. The rainfall averaged 2.5 inches each 24-hour period for three days. The principal damage was in the form of debris deposited on farm lands.



# FLOOD STAGE DATA

Table 5

(All dates in December unless otherwise specified)

DECEMBER 1952

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE	<i>Ft.</i>			<i>Ft.</i>	
Baker: W. Rumney, N. H.	7	11	12	10.2	12
Pemigewasset: Plymouth, N. H.	11	11	12	14.3	12
Lehigh:					
Lehigh, Pa.	9	11	12	11.3	11
Allentown, Pa.	14	11	12	14.9	11
Perkiomen Creek: Graterford, Pa.	8	11	11	13.3	11
Schuylkill: Philadelphia, Pa.	11.5	11	11	11.7	11
Delaware:					
Easton, Pa.	22	12	12	25.4	12
Trenton, N. J.	12	12	12	12.5	12
Tioughnioga: Whitney Point, N. Y.	12	11	12	13.8	11
Chenango: Sherburne, N. Y.	8	11	12	9.4	11
Chemung:					
Elmira, N. Y.	12	11	12	13.4	11
Chemung, N. Y.	12	11	12	15.4	12
Susquehanna:					
Oneonta, N. Y.	12	11	13	15.3	12
Bainbridge, N. Y.	13	12	12	13.6	12
MISSISSIPPI SYSTEM					
<u>White Basin</u>					
Little Red: Judsonia, Ark.	30	5	6	33.8	5
<u>Red Basin</u>					
Ouachita:					
Arkadelphia, Ark.	17	4	5	25.0*	4
MISSISSIPPI SYSTEM (Cont'd.)					
<u>Red Basin (Cont'd.)</u>					
Ouachita: (Cont'd.)					
Camden, Ark.	26	7	10	27.9	8
Sulphur:					
Hagensport, Tex.	38	4	4	38.5	4
Naples, Tex.	22	Nov. 30	12	26.3	11
McCartney Bridge, Tex.	20	5	24	25.2	12
WEST GULF OF MEXICO DRAINAGE					
Sabine: Mineola, Tex.	14	2	3	14.7	2
		6	10	15.0	9
		23	27	16.2	25
PACIFIC SLOPE DRAINAGE					
<u>Sacramento Basin</u>					
Sacramento:					
Colusa Weir	61.8	7	9	64.0	8
		11	13	63.3	12
		20	22	63.5	21
		27	30	64.5	28
		30	**		
Tisdale Weir	45.5	7	8	48.0	8
		10	13	47.5	12
		20	23	47.5	21
		27	**	48.5	28
Russian: Guerneville, Calif.	29.5	7	8	33.4	7
Eel: Fernbridge, Calif.	17.5	7	8	21.0	7

\* Provisional

\*\* Continued at end of month

Estimated, highest observed 24.5' at 6 p.m. of the 4th



# RADIOSONDE DATA

Average monthly values

DECEMBER 1952

Table 20

ALBUQUERQUE, N. MEX. ( 839 MB. )				ATLANTA, GA. ( 984 MB. )				BIG SPRING, TEX. ( 928 MB. )				BISMARCK, N. DAK. ( 954 MB. )				BOISE, IDAHO ( 917 MB. )				BROWNSVILLE, TEX. (1019 MB. )				BUFFALO, N. Y. ( 990 MB. )							
Standard pressure surface (mb.)																															
Number of observations				Dynamic height				Temperature				Relative humidity				Number of observations				Dynamic height				Temperature				Relative humidity			
SURFACE	31	1,629	1.5	56	31	309	5.5	75	31	784	6.6	61	31	505	- 6.8	80	31	868	1.1	82	31	7	15.2	84	31	221	0.4	82			
1,000	31	177			31	177			31	162			31	133			31	161			31	163	16.4	73	31	141	- 3.4				
950	31	604			31	598	6.1	63	31	598			31	544	- 6.6	77	31	581			31	605	15.3	68	31	559	- .6	74			
900	31	1,051			31	1,042	5.9	51	31	1,037	8.5	47	31	967	- 1.4	59	31	1,014	1.8	73	31	1,056	13.3	65	31	985	- 2.4	72			
850	31	1,513			31	1,510	5.7	41	31	1,509	7.4	40	31	1,422	- 1.1	49	31	1,474	5.6	69	31	1,536	12.0	55	31	1,436	- 4.5	68			
800	31	2,004			31	2,004	4.2	39	31	2,006	5.1	36	31	1,904	- 2.9	44	31	1,959	1.6	67	31	2,042	10.0	51	31	1,913	- 5.8	64			
750	31	2,527	- 1.7	44	31	2,534	1.9	40	31	2,534	2.6	30	31	2,420	- 5.4	44	31	2,474	- 4.3	67	31	2,588	8.1	40	31	2,420	- 7.6	62			
700	31	3,069	- 3.8	43	31	3,081	- .7	38	31	3,085	- .2		31	2,951	- 8.3	41	31	3,011	- 7.4	62	31	3,143	5.3	34	31	2,951	- 9.8	59			
650	31	3,648	- 6.6	40	31	3,672	- 4.1	36	31	3,678	- 3.4		31	3,532	- 11.6	40	31	3,589	- 10.8	62	31	3,751	2.1		31	3,525	- 12.3	54			
600	31	4,272	- 10.3	37	31	4,296	- 7.8		31	4,302	- 7.3		31	4,131	- 15.3	38	31	4,196	- 14.6	59	31	4,386	- 1.9		31	4,128	- 15.6	49			
550	31	4,935	- 14.9	38	31	4,973	- 11.7		31	4,979	- 12.0		31	4,789	- 19.7	36	31	4,850	- 18.8	57	31	5,073	- 6.3		31	4,783	- 19.4	46			
500	31	5,650	- 19.9	37	31	5,691	- 16.5		31	5,695	- 16.8		31	5,483	- 24.7	37	31	5,554	- 23.6	56	31	5,808	- 11.6		31	5,481	- 24.3	45			
450	31	6,424	- 25.5	37	31	6,484	- 21.9		31	6,482	- 22.6		31	6,249	- 30.3		31	6,317	- 29.3	54	31	6,618	- 17.1		31	6,245	- 29.7	45			
400	31	7,268	- 32.1	36	31	7,332	- 27.6		31	7,327	- 29.1		31	7,069	- 36.4		31	7,146	- 35.4	52	31	7,481	- 23.2		31	7,070	- 35.5	45			
350	31	8,197	- 38.8		31	8,279	- 34.1		31	8,267	- 35.9		31	7,977	- 43.7		31	8,062	- 42.3		31	8,443	- 30.6		31	7,988	- 41.3				
300	31	9,240	- 45.6		31	9,342	- 41.2		31	9,322	- 43.3		31	8,997	- 51.1		31	9,086	- 49.6		31	9,519	- 38.4		31	9,021	- 47.2				
250	31	10,437	- 51.7		31	10,558	- 49.2		31	10,529	- 49.8		31	10,167	- 55.6		31	10,262	- 55.5		31	10,744	- 47.1		31	10,210	- 52.7				
200	31	11,866	- 56.3		31	12,004	- 55.9		31	11,966	- 55.9		31	11,588	- 55.5		31	11,679	- 56.5		31	12,189	- 55.6		31	11,638	- 53.3				
175	31	12,712	- 57.5		31	12,847	- 53.7		31	12,810	- 58.4		31	12,438	- 54.3		31	12,527	- 55.6		31	13,031	- 59.5		31	12,490	- 53.9				
150	31	13,682	- 58.4		31	13,809	- 60.9		31	13,776	- 60.9		31	13,427	- 53.9		31	13,513	- 56.0		31	13,979	- 62.8		31	13,478	- 54.9				
125	31	14,819	- 61.1		31	14,935	- 63.7		31	14,904	- 62.9		31	14,594	- 54.9		31	14,670	- 56.7		31	15,091	- 65.5		31	14,645	- 56.8				
100	31	16,192	- 63.6		31	16,292	- 65.9		31	16,266	- 66.0		31	16,016	- 55.7		31	16,079	- 57.8		31	16,436	- 69.2		31	16,051	- 59.0				
80	31	17,563	- 63.5		31	17,640	- 65.8		31	17,613	- 65.2		31	17,435	- 57.2		31	17,493	- 57.9		31	17,761	- 70.0		31	17,434	- 60.1				
60	31	19,320	- 62.2		31	19,392	- 63.5		31	19,373	- 64.4		31	19,261	- 58.3		31	19,309	- 57.9		31	19,483	- 66.1		31	19,235	- 59.7				
40	31	20,447	- 60.9		31	20,516	- 62.6		31	20,487	- 61.9		31	20,429	- 59.7		31	20,454	- 58.1		31	20,592	- 62.7		31	20,396	- 59.5				
30	31	21,872	- 56.3		31	21,905	- 61.0		31	21,884	- 60.3		31	21,826	- 59.6		31	21,860	- 58.0		31	21,976	- 59.0		31	21,810	- 59.8				
					9	23,699	- 58.8														9	23,810	- 55.2								



# RADIOSONDE DATA

Average monthly values

Table 20—Continued

DECEMBER 1952

Standard pressure surface (mb.)	JOLIET, ILL. (995 MB.)				LAKE CHARLES, LA. (1020 MB.)				LANDER, WYO. (826 MB.)				LAS VEGAS, NEV. (941 MB.)				LITTLE ROCK, ARK. (1010 MB.)				MAZATLAN, MEXICO (1011 MB.)				MEDFORD, ORE. (967 MB.)			
	Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations			
	Dynamic height	Temperature	Relative humidity		Dynamic height	Temperature	Relative humidity		Dynamic height	Temperature	Relative humidity		Dynamic height	Temperature	Relative humidity		Dynamic height	Temperature	Relative humidity		Dynamic height	Temperature	Relative humidity		Dynamic height	Temperature	Relative humidity	
SURFACE	30	179	-0.9	86	31	175	10.9	82	31	1,696	-5.3	68	31	660	6.9	57	31	79	6.4	71	29	14	21.2	80	31	401	4.1	90
1,000	30	137	-3.4		31	171	11.4	74	31	1,699			31	154			31	159	7.5	65	29	113	21.2	71	31	128		
950	30	550	-1.4	78	31	605	10.1	68	31	1,598			31	583			31	585	6.6	63	29	575	21.9	49	31	553	4.3	82
900	30	978	-1.7	69	31	1,049	9.9	54	31	1,018			31	1,029	9.2	45	31	1,024	5.2	59	29	1,026	19.6	47	31	988	3.7	73
850	30	1,433	-2.5	63	31	1,523	8.4	49	31	1,474			31	1,500	5.9	47	31	1,490	4.3	48	29	1,515	16.7	46	31	1,451	1.8	71
800	30	1,913	-3.4	57	31	2,022	6.1	52	31	1,954	-1.8	50	31	1,993	2.7	49	31	1,982	3.0	41	29	2,028	13.3	48	31	1,938	-1.8	69
750	30	2,427	-5.4	52	31	2,560	3.9	49	31	2,475	-1.7	41	31	2,521	-2.4	47	31	2,507	1.2	38	29	2,577	9.7	48	31	2,457	-3.7	63
700	30	2,961	-7.7	46	30	3,106	1.5	43	31	3,016	-5.1	38	31	3,062	-3.0	41	31	3,055	-1.4	37	29	3,137	5.9	46	31	2,992	-6.7	57
650	30	3,540	-10.7	44	30	3,703	-1.5	40	31	3,598	-9.1	37	31	3,651	-6.1	33	31	3,647	-4.6	35	29	3,743	1.7	44	31	3,575	-10.1	53
600	30	4,146	-14.7	42	30	4,333	-5.5	38	31	4,208	-13.1	38	31	4,269	-9.8	34	28	4,271	-8.4		29	4,380	-2.2		31	4,180	-13.7	50
550	30	4,804	-19.1	40	30	5,012	-9.9		31	4,866	-17.7	39	31	4,937	-14.3	33	28	4,942	-12.9		29	5,067	-6.9		31	4,843	-18.1	50
500	30	5,502	-24.2	39	30	5,739	-14.8		30	5,575	-22.5	37	31	5,651	-19.1	35	28	5,660	-17.9		29	5,802	-11.7		31	5,541	-22.8	46
450	30	6,267	-29.6	38	30	6,537	-20.2		30	6,341	-28.1	39	31	6,432	-24.7	35	28	6,444	-23.4		29	6,606	-17.1		31	6,307	-27.9	45
400	30	7,092	-35.3	38	30	7,392	-26.3		30	7,174	-34.5	43	31	7,273	-31.3		28	7,291	-29.6	35	28	7,476	-23.2		31	7,140	-34.3	44
350	30	8,010	-41.3		29	8,341	-33.5		30	8,094	-41.1		30	8,204	-38.6		28	8,230	-36.0		28	8,439	-30.3		31	8,060	-41.2	
300	30	9,042	-47.5		29	9,405	-41.0		30	9,124	-48.4		30	9,244	-46.5		28	9,285	-42.6		29	9,520	-38.0		31	9,091	-48.3	
250	30	10,234	-51.7		26	10,609	-49.2		29	10,312	-54.6		30	10,432	-53.6		28	10,496	-49.6		27	10,751	-46.9		31	10,274	-54.5	
200	30	11,673	-53.7		25	12,049	-57.2		25	11,745	-56.9		30	11,850	-57.8		27	11,937	-55.2		23	12,198	-56.6		31	11,696	-55.7	
175	28	12,529	-53.8		25	12,888	-59.8		25	12,592	-56.2		30	12,691	-57.9		27	12,786	-56.8		19	13,039	-61.1		30	12,553	-55.3	
150	28	13,516	-55.0		23	13,843	-61.9		25	13,570	-55.6		29	13,664	-58.6		27	13,757	-58.7		18	13,984	-65.1		29	13,535	-56.3	
125	28	14,675	-56.7		19	14,965	-64.5		23	14,724	-56.1		27	14,802	-59.6		24	14,895	-60.6		14	15,085	-69.0		27	14,691	-57.5	
100	28	16,082	-58.4		18	16,315	-67.6		21	16,120	-57.4		25	16,188	-62.7		22	16,275	-63.2		12	16,404	-73.0		26	16,102	-58.5	
80	26	17,471	-59.2		15	17,659	-68.6		16	17,516	-58.8		16	17,559	-62.7		17	17,646	-63.3		9	17,713	-73.6		22	17,507	-59.2	
60	21	19,275	-59.4		14	19,386	-66.0		12	19,329	-59.2		11	19,326	-62.2		15	19,419	-62.0		8	19,410	-69.6		18	19,338	-58.5	
50	18	20,426	-59.3		12	20,508	-63.6		11	20,470	-59.2		8	20,458	-60.7		13	20,558	-60.3		5	20,503	-67.1		15	20,496	-57.2	
40	12	21,856	-58.8		9	21,859	-62.2		7	21,899	-57.5		5	21,842	-58.9		10	21,945	-59.8		6	21,883	-62.5		7	21,911	-56.5	
30	5	23,689	-58.7		5	23,631	-59.9														5	23,684	-56.9					

Standard pressure surface (mb.)	MERIDA, MEXICO (1015 MB.)				MIAMI, FLA. (1019 MB.)				NANTUCKET, MASS. (1016 MB.)				NASHVILLE, TENN. (999 MB.)				NORTH PLATTE, NEBR. (917 MB.)				OAKLAND, CALIF. (1018 MB.)				OKLAHOMA CITY, OKLA. (972 MB.)			
	Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations				Number of observations			
	Dynamic height	Temperature	Relative humidity		Dynamic height	Temperature	Relative humidity		Dynamic height	Temperature	Relative humidity		Dynamic height	Temperature	Relative humidity		Dynamic height	Temperature	Relative humidity		Dynamic height	Temperature	Relative humidity		Dynamic height	Temperature	Relative humidity	
SURFACE	31	27	22.2	77	31	4	18.2	75	30	14	2.7	76	31	177	4.7	74	31	849	-5.2	82	31	6	10.4	85	31	391	3.0	71
1,000	31	160	21.9	76	31	169	18.9	67	30	140	2.7	71	31	165	.8		31	153			31	151	10.3	79	31	159		
950	31	605	20.0	73	31	607	16.0	70	30	553	-0.1	71	31	586	4.2	64	31	567			31	579	8.4	76	31	582	4.7	62
900	31	1,070	17.0	73	31	1,066	13.4	64	30	985	-1.8	64	31	1,024	3.5	57	31	993	-1.4	68	31	1,022	6.4	70	31	1,019	4.7	55
850	31	1,555	13.7	76	31	1,545	11.3	54	30	1,439	-2.5	50	31	1,486	2.2	51	31	1,451	-7.4	51	31	1,489	4.2	61	31	1,484	4.3	42
800	31	2,065	11.4	65	31	2,050	10.2	44	30	1,918	-4.2	49	31	1,975	-9.1	48	31	1,937	-2.9	39	31	1,980	1.7	59	31	1,976	2.5	37
750	31	2,607	10.0	41	31	2,589	8.7	32	30	2,430	-6.0	45	31	2,499	-9.9	44	31	2,455	-2.7	40	31	2,500	-9.9	51	31	2,503	-9.3	37
700	31	3,174	8.0		30	3,152	5.9		30	2,963	-8.3	41	31	3,040	-3.2	40	31	3,095	-5.6	39	31	3,045	-4.0	45	31	3,046	-2.5	33
650	30	3,787	5.1		30	3,756	3.0		30	3,540	-11.0	40	31	3,629	-12.0	37	31	3,577	-9.1	39	31	3,631	-7.1	45	31	3,636	-5.9	
600	30	4,432	1.6		30	4,399	-5.5		30	4,145	-14.7	41	31	4,245	-9.7		31	4,187	-13.0	40	31	4,246	-10.9	41	31	4,254	-9.5	
550	30	5,129	-2.6		30	5,085	-5.2		30	4,800	-19.0	41	30	4,912	-13.8		31	4,846	-17.5	40	31	4,912	-15.4	41	30	4,931	-13.7	
500	30	5,876	-7.6		30	5,829	-10.5		30	5,508	-23.6	39	30	5,628	-18.7		31	5,551	-22.5	38	31	5,622	-20.5	41	29	5,640	-19.1	
450	30	6,695	-13.1		30	6,638	-15.9		30	6,268	-28.8	39	30	6,409	-24.1		31	6,320	-28.3	39	31	6,396	-26.0	42	29	6,422	-24.7	
400	30	7,575	-19.4		29	7,509	-22.2		30	7,096	-34.5	40	30	7,253	-30.2		31	7,151	-34.5	40	31	7,236	-32.3	45	29	7,263	-30.7	
350	29	8,553	-26.8		29	8,475	-29.3		30	8,017	-40.4		30	8,189	-36.6	42	31	8,070	-41.5		31	8,165	-38.8		29	8,197	-37.5	
300	29	9,646	-35.2		29	9,557	-37.3		30	9,052	-46.7		30	9,241	-42.9		31	9,206	-48.6		30	9,296	-46.6		29	9,244	-44.4	
250	29	10,889	-45.2		29	10,788	-47.1		30	10,246	-51.5		30	10,448	-50.2		30	10,284	-53.8		30	10,395	-54.0		29	10,446	-50.9	
200	27	12,339	-51.4		29	12,226	-57.8																					



# RADIOSONDE DATA

Average monthly values

DECEMBER 1952

Table 20—Continued

SAN JUAN, P. R. (1014 MB.)				SANTA MARIA, CALIF. (1011 MB.)				S. STE. MARIE, MICH. ( 988 MB.)				SPOKANE, WASH. ( 930 MB.)				SWAN ISLAND, W. I. (1015 MB.)				TACUBAYA, MEXICO ( 774 MB.)				TAMPA, FLA. (1020 MB.)							
Standard pressure surface (mb.)																															
Number of observations				Dynamic height				Temperature				Relative humidity				Number of observations				Dynamic height				Temperature				Relative humidity			
SURFACE				31	19	23.9	75	31	71	9.8	82	31	221	- 2.7	85	30	722	- 0.9	90	31	10	24.8	74	30	2,306	14.5	51	31	9	13.4	82
1,000				31	141	23.7	73	31	161	11.4	74	31	124	- 3.8	79	30	141	- 3.8	84	31	137	24.3	73	30	77		31	176	15.6	70	
950				31	595	20.3	77	31	591	10.7	61	31	532	- 5.5	79	30	554	- 5.5	84	31	587	20.7	78	30	535		31	611	13.6	60	
900				31	1,054	16.7	82	31	1,038	8.4	56	31	957	- 6.6	72	30	987	- 6.6	84	31	1,051	17.5	78	30	1,011		31	1,064	12.1	54	
850				31	1,539	13.5	79	31	1,508	6.0	51	31	1,404	- 6.6	72	30	1,444	- 6.6	84	31	1,537	14.6	72	30	1,502		31	1,542	10.7	51	
800				31	2,048	11.8	60	31	2,002	3.3	45	31	1,877	- 7.1	65	30	1,926	- 7.1	84	31	2,048	12.6	66	30	2,027		31	2,045	9.0	45	
750				31	2,601	11.6	33	31	2,525	- 4.3	38	31	2,381	- 8.6	58	30	2,438	- 8.6	84	31	2,596	11.3	48	30	2,579	14.1	43	31	2,585	6.9	37
700				31	3,163	9.4		31	3,073	- 2.6	35	31	2,912	- 10.9	51	30	2,971	- 10.9	84	31	3,163	9.2		30	3,151	9.8	45	31	3,142	4.5	28
650				31	3,786	6.5		31	3,660	- 5.9	35	30	3,481	- 13.7	45	30	3,550	- 11.9	58	31	3,778	6.0		30	3,766	5.1	50	31	3,747	1.5	
600				30	4,426	2.6		31	4,279	- 9.7	37	30	4,082	- 17.0	44	30	4,150	- 15.7	54	31	4,426	2.4		30	4,410	5.5	53	31	4,382	- 1.9	
550				30	5,132	- 1.6		31	4,944	- 14.0	35	30	4,735	- 21.1	48	30	4,803	- 20.0	54	31	5,124	- 1.6		30	5,103	- 4.3	46	31	5,069	- 6.3	
500				30	5,876	- 6.1		31	5,662	- 19.0	34	30	5,428	- 25.9	50	30	5,502	- 24.6	53	31	5,876	- 6.3		30	5,847	- 8.7		31	5,806	- 11.4	
450				30	6,707	- 11.6		31	6,445	- 24.8	35	30	6,186	- 31.1	47	30	6,265	- 30.1	53	31	6,694	- 11.7		29	6,662	- 14.0		31	6,616	- 17.1	
400				30	7,585	- 17.9		31	7,284	- 30.9	38	30	7,010	- 36.9	44	30	7,089	- 36.2	54	31	7,582	- 18.5		29	7,542	- 19.7		31	7,478	- 23.5	
350				30	8,569	- 25.1		31	8,216	- 38.2		30	7,920	- 43.6		30	8,001	- 43.1		31	8,563	- 25.5		25	8,518	- 26.6		31	8,440	- 30.3	
300				30	9,668	- 33.9		31	9,258	- 46.1		30	8,942	- 49.9		30	9,022	- 50.6		31	9,660	- 34.1		21	9,614	- 35.1		31	9,518	- 37.6	
250				30	10,919	- 43.9		31	10,449	- 53.1		29	10,118	- 53.8		30	10,192	- 56.2		30	12,367	- 55.6		11	12,307	- 57.0		31	12,195	- 56.4	
200				30	12,379	- 55.5		31	11,871	- 56.8		28	11,555	- 53.8		30	11,605	- 56.6		30	13,204	- 61.5		10	13,146	- 62.6		31	13,033	- 60.4	
175				30	13,218	- 61.7		31	12,715	- 57.2		28	12,414	- 53.8		30	12,454	- 55.4		29	14,146	- 66.4		8	14,098	- 66.5		31	13,985	- 63.3	
150				30	14,159	- 67.8		30	13,690	- 58.6		27	13,407	- 53.5		30	13,437	- 55.2		27	15,241	- 70.9		7	15,192	- 69.6		31	15,095	- 66.6	
125				29	15,242	- 72.6		30	14,828	- 61.1		27	14,577	- 54.8		28	14,581	- 55.2		23	16,542	- 76.3		5	16,504	- 73.3		31	16,431	- 72.0	
100				28	16,534	- 78.3		28	16,212	- 63.6		27	15,994	- 56.8		25	15,996	- 56.1		16	17,826	- 77.4					26	17,745	- 72.0		
80				21	17,807	- 77.7		25	17,587	- 64.0		25	17,407	- 57.9		21	17,422	- 56.1		13	19,489	- 73.3					24	19,451	- 68.7		
60				18	19,491	- 70.1		22	19,354	- 62.1		19	19,224	- 59.1		15	19,253	- 56.8		12	21,934	- 62.9					22	21,914	- 62.7		
50				18	20,587	- 66.0		17	20,491	- 60.3		17	20,382	- 59.5		8	20,395	- 57.4		11	23,729	- 57.3					22	23,699	- 58.7		
40				17	21,955	- 60.9		15	21,890	- 58.3		10	21,751	- 59.2		5	21,869	- 56.3		11	26,334	- 49.9					14	26,236	- 47.2		
30				13	23,769	- 55.4		8	23,771	- 54.2									8	28,236	- 47.2										
20																															
15																															

TAIHOOSH ISLAND, WASH. (1004 MB.)				VERACRUZ, MEXICO (1015 MB.)				WASHINGTON, D. C. (1009 MB.)				*CAMAGUEY, CUBA (1000 MB.)				**CAMAGUEY, CUBA (1002 MB.)				#CAMAGUEY, CUBA (1004 MB.)											
Number of observations				Dynamic height				Temperature				Relative humidity				Number of observations				Dynamic height				Temperature				Relative humidity			
SURFACE				31	31	7.4	81	22	12	22.5	78	31	88	2.6	72	25	122	23.7	94	28	122	20.9	94	16	122	19.1	93				
1,000				31	60	7.3	77	22	140	21.7	79	31	161	3.2	68	25	125	23.7	94	28	140	21.1	93	16	156	19.5	91				
950				31	486	4.9	78	22	587	19.2	78	31	582	2.9	65	25	585	24.0	82	28	596	21.3	80	16	604	19.4					
900				31	920	2.2	78	22	1,048	16.9	75	31	1,014	1.5	64	25	1,050	21.4	81	28	1,055	18.4	75	16	1,064	16.6	77				
850				31	1,379	- 7.7	77	22	1,535	14.6	69	31	1,473	- 3.1	59	25	1,544	18.5	79	28	1,544	15.6	74	16	1,550	14.6	63				
800				31	1,861	- 3.7	75	22	2,046	12.4	63	31	1,957	- 1.5	55	25	2,063	15.5	77	28	2,057	13.5	59	16	2,061	12.7					
750				31	2,374	- 6.7	72	22	2,594	10.5	51	31	2,479	- 3.3	50	25	2,611	12.5	71	28	2,605	11.6		16	2,608	11.1					
700				31	2,904	- 9.7	60	22	3,157	- 8.0	45	31	3,013	- 5.5	41	25	3,185	9.4	63	28	3,173	9.0		16	3,175	8.6					
650				31	3,476	- 13.3	54	21	3,763	- 4.8		31	3,597	- 8.2	33	25	3,801	6.0	56	28	3,789	5.4		16	3,791	5.3					
600				31	4,076	- 17.2	52	20	4,409	- 9.9		31	4,209	- 11.6		23	4,450	2.0		26	4,433	1.8		16	4,433	1.3					
550				31	4,728	- 21.8	54	19	5,103	- 3.4		31	4,873	- 15.6	33	21	5,150	- 1.5		24	5,127	- 2.5		16	5,130	- 2.6					
500				31	5,417	- 26.6	52	17	5,849	- 8.4		31	5,583	- 20.5		19	5,899	- 5.5		22	5,876	- 7.4		16	5,878	- 7.3					
450				31	6,174	- 32.2	50	16	6,666	- 13.7		31	6,362	- 26.0		19	6,722	- 10.7		20	6,695	- 13.0		16	6,697	- 12.9					
400				31	6,991	- 38.2	50	14	7,540	- 20.4		31	7,197	- 31.9		17	7,614	- 16.0		20	7,578	- 19.4		15	7,581	- 19.2					
350				31	7,896	- 44.7		14	8,515	- 27.7		31	8,127	- 38.2		15	8,604	- 22.3		20	8,556	- 27.2		13	8,561	- 26.1					
300				30	8,906	- 51.1		13	9,605	- 36.4		31	9,171	- 44.7		14	9,721	- 30.8		20	9,649	- 35.5		12	9,660	- 34.3					
250				29	10,080	- 55.3		12	10,844	- 46.4		31	10,371	- 50.9		11	10,997	- 40.6		18	10,892	- 44.9		10	10,908	- 44.2					
200				29	11,500	- 55.1		12	12,289	- 57.8		31	11,808	- 54.4		10	12,477	- 53.0		15	12,350	- 55.5		6	12,358	- 55.1					
175				28	12,355	- 54.7		11	13,126	- 63.0		31	12,661	- 55.3		9	13,321	- 60.3		14	13,186	- 61.3		5	13,203	- 60.9					
150				27	13,347	- 54.9		10	14,065	- 67.4		31	13,638	- 57.5		7	14,271	- 67.8		13	14,127	- 67.3									
125				21	14,492	- 54.9		6	15,174	- 70.6		31	14,783	- 59.6		5	15,347	- 74.3		12	15,214	- 72.4									



# PILOT BALLOON DATA

Average monthly resultant winds

Table 21

DECEMBER 1952

Altitude (meters) m.s.l.	Ablene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N.Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S.C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)			Ely, Nev. (1,910 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed			
Surface-----	31	249	1.7	31	323	1.4	31	252	4.5	28	297	1.4	26	126	1.4	27	93	1.8	27	230	3.4	26	197	1.5	27	261	1.2	25	226	1.8	31	281	1.4	29	176	3.3
500-----	29	252	3.7	29	252	3.7	29	252	3.7	26	275	4.2	26	158	1.4	20	203	8.15	25	239	5.0	26	223	3.6	26	264	2.6	25	220	4.0	31	281	1.4	29	176	3.3
1,000-----	29	268	5.5	29	268	5.5	29	268	5.5	26	275	4.2	26	158	1.4	20	203	8.15	25	239	5.0	26	223	3.6	26	264	2.6	25	220	4.0	31	281	1.4	29	176	3.3
1,500-----	29	277	7.8	31	298	1.7	30	266	9.1	23	295	8.8	24	223	4.6	17	271	4.6	10	251	8.1	14	261	4.8	34	266	8.3	12	237	13.1	31	274	2.6	29	180	3.3
2,000-----	29	273	9.4	31	285	4.8	28	282	8.5	23	294	9.6	15	228	5.9	16	278	4.3	11	243	9.5	21	279	11.0	21	275	12.6	11	259	12.6	31	267	4.5	29	180	3.3
2,500-----	29	274	10.6	29	282	7.3	28	285	8.5	23	299	10.6	12	243	7.5	16	277	5.9	10	251	8.1	14	261	4.8	34	266	8.3	12	237	13.1	31	274	2.6	29	180	3.3
3,000-----	28	273	13.2	25	280	10.5	26	283	10.1	19	298	11.6	10	265	9.0	15	284	8.8	12	273	10.3	13	269	7.5	22	269	9.7	21	279	11.0	29	267	4.5	29	180	3.3
4,000-----	25	267	16.4	23	283	12.8	20	289	9.2	17	303	13.2	10	265	9.0	15	284	8.8	12	273	10.3	13	269	7.5	22	269	9.7	21	279	11.0	29	267	4.5	29	180	3.3
5,000-----	23	269	18.1	21	279	15.5	16	290	9.8	13	294	15.6	10	265	9.0	15	284	8.8	12	273	10.3	13	269	7.5	22	269	9.7	21	279	11.0	29	267	4.5	29	180	3.3
6,000-----	23	269	18.1	21	279	15.5	16	290	9.8	13	294	15.6	10	265	9.0	15	284	8.8	12	273	10.3	13	269	7.5	22	269	9.7	21	279	11.0	29	267	4.5	29	180	3.3
8,000-----	23	269	18.1	21	279	15.5	16	290	9.8	13	294	15.6	10	265	9.0	15	284	8.8	12	273	10.3	13	269	7.5	22	269	9.7	21	279	11.0	29	267	4.5	29	180	3.3
10,000-----	23	269	18.1	21	279	15.5	16	290	9.8	13	294	15.6	10	265	9.0	15	284	8.8	12	273	10.3	13	269	7.5	22	269	9.7	21	279	11.0	29	267	4.5	29	180	3.3
12,000-----	23	269	18.1	21	279	15.5	16	290	9.8	13	294	15.6	10	265	9.0	15	284	8.8	12	273	10.3	13	269	7.5	22	269	9.7	21	279	11.0	29	267	4.5	29	180	3.3
14,000-----	23	269	18.1	21	279	15.5	16	290	9.8	13	294	15.6	10	265	9.0	15	284	8.8	12	273	10.3	13	269	7.5	22	269	9.7	21	279	11.0	29	267	4.5	29	180	3.3

Altitude (meters) m.s.l.	Grand Junc- tion, Colo. (1,475 m.)			Greensboro, N.C. (271 m.)			Havre, Mont. (767 m.)			Jackson- ville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Little Rock, Ark. (88 m.)			Medford, Ore. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed			
Surface-----	31	310	0.6	25	256	2.1	31	242	1.7	29	287	1.1	21	230	2.7	27	242	2.2	25	170	0.8	31	74	1.6	27	339	1.7	29	251	1.2	24	176	1.5	28	280	2.5
500-----	29	310	0.6	25	256	2.1	31	242	1.7	29	287	1.1	21	230	2.7	27	242	2.2	25	170	0.8	31	74	1.6	27	339	1.7	29	251	1.2	24	176	1.5	28	280	2.5
1,000-----	29	310	0.6	25	256	2.1	31	242	1.7	29	287	1.1	21	230	2.7	27	242	2.2	25	170	0.8	31	74	1.6	27	339	1.7	29	251	1.2	24	176	1.5	28	280	2.5
1,500-----	31	306	5.5	24	284	8.0	30	256	9.0	26	267	8.2	12	267	9.9	20	276	8.9	18	221	7.1	28	338	1.7	20	289	6.7	21	257	8.6	17	137	4.6	28	276	6.9
2,000-----	30	239	7.4	24	286	10.6	30	271	9.5	23	278	10.0	10	270	10.2	19	284	10.4	11	231	9.5	27	321	2.1	18	234	8.8	19	270	10.5	16	233	4.7	23	284	8.3
2,500-----	30	234	1.8	23	278	12.3	29	277	9.9	18	281	10.2	10	274	12.4	19	279	11.2	17	283	13.1	15	288	14.9	10	288	16.1	25	297	3.4	16	285	1.6	19	269	11.7
3,000-----	28	258	4.6	22	280	13.7	25	277	10.2	17	277	9.9	10	274	12.4	19	279	11.2	17	283	13.1	15	288	14.9	10	288	16.1	25	297	3.4	16	285	1.6	19	269	11.7
4,000-----	23	279	7.5	20	285	17.9	19	278	11.4	17	270	14.4	10	274	12.4	19	279	11.2	17	283	13.1	15	288	14.9	10	288	16.1	25	297	3.4	16	285	1.6	19	269	11.7
5,000-----	19	290	9.8	18	280	20.2	16	290	12.1	13	275	14.7	10	274	12.4	19	279	11.2	17	283	13.1	15	288	14.9	10	288	16.1	25	297	3.4	16	285	1.6	19	269	11.7
6,000-----	17	290	13.7	16	280	23.4	12	280	15.5	12	273	18.4	10	274	12.4	19	279	11.2	17	283	13.1	15	288	14.9	10	288	16.1	25	297	3.4	16	285	1.6	19	269	11.7
8,000-----	11	305	12.0	16	280	23.4	12	280	15.5	12	273	18.4	10	274	12.4	19	279	11.2	17	283	13.1	15	288	14.9	10	288	16.1	25	297	3.4	16	285	1.6	19	269	11.7

Altitude (meters) m.s.l.	Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)			Spokane, Wash. (725 m.)			Washington, D.C. (24 m.)					
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed			
Surface-----	25	300	2.0	31	34	0.2	30	305	0.9	25	303	1.7	25	264	2.0	29	334	0.4	30	271	2.6	23	270	1.6	26	186	2.9	16	183	2.5	26	295	1.6			
500-----	25	296	3.2	31	64	4.4	30	305	0.9	25	303	1.7	25	264	2.0	29	334	0.4	30	271	2.6	23	270	1.6	26	186	2.9	16	183	2.5	26	295	1.6			
1,000-----	23	298	6.7	31	101	8.0	30	302	1.1	19	285	4.2	15	260	8.2	28	252	2.1	27	11	1.0	14	282	5.5	18	197	7.9	16	185	5.0	21	284	7.3			
1,500-----	21	301	7.5	31	135	1.0	30	303	4.3	17	293	6.6	13	270	11.9	24	274	5.2	25	339	2.4	13	282	5.5	18	197	7.9	16	185	5.0	21	284	7.3			
2,000-----	21	300	8.4	29	252	4.4	30	310	6.5	17	289	7.2	12	271	13.6	24	279	7.0	22	336	3.9	11	192	6.1	18	197	7.9	16	185	5.0	21	284	7.3			
2,500-----	21	296	9.1	29	268	2.1	29	304	7.6	14	280	7.7	12	275	12.7	23	277	8.9	22	327	4.6	11	192	6.1	18	197	7.9	16	185	5.0	21	284	7.3			
3,000-----	21	291	11.2	26	280	4.1	29	303	8.5	14	280	8.6	11	280	11.9	20	283	10.8	22	308	6.6	11	192	6.1	18	197	7.9	16	185	5.0	21	284	7.3			
4,000-----	19	290	12.5	26	282	8.0	25	302	9.6	11	282	11.4	10	280	11.9	19	278	13.4	20	309	7.9	11	192	6.1	18	197	7.9	16	185	5.0	21	284	7.3			
5,000-----	18	299	13.9	25	277	10.9	22	305	12.4	11	279	13.9	10	274	12.4	19	279	11.2	17	283	13.1	15	288	14.9	10	288	16.1	25	297	3.4	16	285	1.6	19	269	11.7
6,000-----	17	303	13.7	20	283	15.6	17	301	13.1	11	280	15.9	10	274	12.4	19	279	11.2	17	283	13.1	15														



# RAWIN DATA

Average monthly resultant winds

DECEMBER 1952

Table 22

Altitude (meters) m.s.l.	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Burrowsville, La. (3 m.)			Caribou, Me. (191 m.)			Charleston, S.C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N.C. (275 m.)			Hatteras, N.C. (3 m.)			Int. Falls, Minn. (358 m.)			
	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed					
Surface-----	31	13	1.1	31	156	2.0	31	272	0.1	31	40	0.9	31	30	2.4	31	306	0.8	31	268	1.0	31	253	1.8	31	79	0.7	31	335	0.8	31	294	2.3	29	231	1.3	
500-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
1,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
1,500-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2,000-----	31	309	3.4	31	269	6.7	30	301	6.4	30	240	4.2	28	254	6.6	30	274	5.3	29	264	8.3	31	273	8.8	30	221	.8	31	271	8.3	30	272	10.4	29	284	6.2	
2,500-----	31	296	6.1	31	272	7.7	31	307	7.5	30	251	5.1	28	254	6.5	30	269	6.2	29	266	10.5	31	277	8.9	30	209	2.4	31	270	10.0	29	270	11.5	29	294	7.8	
3,000-----	31	289	7.9	31	273	9.1	31	306	8.4	30	267	7.2	27	256	7.6	30	267	7.3	28	271	12.1	30	273	9.3	30	245	3.1	31	267	11.9	28	271	13.2	29	300	9.1	
4,000-----	31	288	10.3	31	273	11.4	31	307	10.4	29	266	11.6	25	259	11.7	30	263	8.9	29	267	15.8	30	271	12.5	31	281	6.8	31	269	16.1	24	273	16.5	29	292	9.4	
5,000-----	30	279	12.3	29	272	14.2	31	308	11.7	27	263	13.5	25	264	16.0	30	258	12.0	25	271	16.2	30	269	15.2	31	285	10.4	26	271	19.0	22	273	19.0	27	277	10.0	
6,000-----	29	280	13.6	24	261	15.9	29	301	12.5	25	259	15.4	23	256	21.1	28	263	13.0	21	275	19.3	30	267	17.9	30	294	11.6	23	273	20.3	15	285	18.1	25	282	11.3	
8,000-----	23	276	14.9	20	257	23.4	26	286	16.8	20	257	18.7	15	263	23.7	25	260	13.2	16	272	25.7	24	269	16.9	27	289	12.8	17	283	24.3	13	283	26.3	20	284	12.8	
10,000-----	21	278	17.9	10	246	29.3	21	270	14.7	10	267	23.8	---	---	---	18	265	17.1	11	269	28.6	20	260	27.9	20	275	17.3	11	279	23.0	---	---	---	---	---	---	
12,000-----	12	291	18.6	---	---	---	---	---	---	---	---	---	---	---	---	14	261	15.6	---	---	---	14	258	27.0	16	269	17.4	---	---	---	---	---	---	---	---	---	---
14,000-----	10	278	19.4	---	---	---	---	---	---	---	---	---	---	---	---	14	274	11.5	---	---	---	10	263	24.5	13	263	15.8	---	---	---	---	---	---	---	---	---	---
16,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	279	10.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
18,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Altitude (meters) m.s.l.	Little Rock, Ark. (80 m.)			Medford, Ore. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P.R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)			
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	
Surface-----	31	264	1.3	31	140	1.9	31	53	0.9	29	322	2.4	30	201	1.2	31	166	1.9	31	205	0.9	31	313	1.7	31	25	1.4	31	80	2.8	30	278	0.7	31	97	1.2	
500-----	31	258	3.8	31	149	2.1	31	97	2.5	29	332	5.7	29	216	4.2	29	191	3.7	30	223	1.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,000-----	31	264	6.0	30	178	4.3	31	98	1.6	29	315	6.1	29	243	6.6	28	210	4.6	30	247	4.5	31	312	2.0	31	214	1.9	30	63	7.1	29	288	2.9	30	82	1.3	
1,500-----	31	269	7.4	30	204	7.2	31	303	.2	29	299	7.3	29	262	7.5	27	238	5.3	30	265	6.6	31	309	6.0	31	248	4.4	31	56	5.6	29	304	4.5	29	289	1.2	
2,000-----	28	275	8.2	29	224	8.4	31	278	1.4	29	293	8.8	29	270	8.3	27	259	5.6	30	272	7.9	31	312	8.0	31	258	6.4	31	59	5.2	29	303	6.0	28	301	4.0	
2,500-----	27	274	10.9	29	236	11.3	31	270	2.9	29	291	11.1	30	266	9.7	26	259	6.9	30	268	9.8	31	317	8.9	30	260	7.8	31	56	3.9	29	308	7.1	28	297	6.1	
3,000-----	26	276	11.8	29	237	12.6	31	267	4.8	28	289	12.3	29	266	11.4	26	268	8.9	29	266	11.1	31	317	9.8	30	266	9.1	31	27	2.8	30	304	8.9	27	297	7.9	
4,000-----	24	274	15.2	28	252	11.9	30	268	8.7	27	285	15.2	27	270	14.3	27	273	11.7	26	272	13.9	30	305	10.5	29	262	12.8	31	10	3.0	30	301	9.8	25	299	9.3	
5,000-----	18	275	15.2	27	251	12.5	29	266	11.9	23	286	17.3	26	271	17.9	25	275	13.2	24	263	15.8	30	301	12.1	28	263	15.1	30	358	4.2	28	300	12.6	26	293	11.8	
6,000-----	16	273	17.1	22	238	11.8	29	264	15.2	19	286	17.2	23	270	20.1	25	275	13.9	22	261	16.4	28	282	10.6	27	267	17.5	30	313	4.1	28	296	14.6	25	286	13.2	
8,000-----	10	278	20.7	17	234	12.2	27	266	24.0	13	289	20.1	18	263	21.8	23	281	19.1	19	268	19.5	25	263	12.3	19	258	21.9	30	303	8.5	24	291	15.3	21	269	13.6	
10,000-----	---	---	---	10	271	11.2	23	264	25.9	10	279	21.7	---	---	---	15	268	19.1	12	279	24.7	22	264	12.7	11	270	28.0	---	---	---	---	---	---	---	---	---	---
12,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	276	17.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
14,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
18,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
20,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
22,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Altitude (meters) m.s.l.	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Tatoosh Is., Wash. (33 m.)			Washington, D.C. (88 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface-----	30	280	1.1	30	146	1.4	27	147	4.3	30	330	1.4
500-----	29	265	2.0	---	---	---	26	185	6.6	30	302	3.9
1,000-----	29	266	3.8	30	176	4.6	26	198	7.9	30	286	4.8
1,500-----	29	278	5.1	30	209	6.7	25	203	8.1	30	289	6.3
2,000-----	29	280	6.4	29	213	7.2	26	205	9.1	29	279	8.0
2,500-----	29	287	7.2	29	219	7.6	26	208	10.0	28	274	9.6
3,000-----	27	284	7.0	29	232	8.1	25	220	9.8	27	272	11.6
4,000-----	22	284	9.4	29	251	10.6	23	229	10.7	24	276	16.3
5,000-----	19	277	8.0	29	253	13.5	20	222	11.7	22	267	20.5
6,000-----	17	267	10.8	28	248	1						



# SOLAR RADIATION DATA

Table 30 Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

DECEMBER 1952

Date	Sun's zenith distance								
	A. M.				0.0°	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
LINCOLN, NEBR.									
	Air mass								
	4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77
Dec. 8-----	0.88	1.01	1.18	----	----	----	1.01	0.88	0.79
11-----	----	----	----	----	----	----	1.20	1.12	1.05
15-----	.87	.98	1.11	----	----	----	1.18	1.05	.96
16-----	.89	1.00	1.15	----	----	----	----	----	----
18-----	.89	.96	1.09	----	----	----	1.20	1.06	.98
29-----	----	----	1.09	----	----	----	----	----	----
Aver-ages	.88	.99	1.12	----	----	----	1.15	1.03	.95
Departures	-.06	-.08	-.09	----	----	----	-.03	-.02	+.01
MADISON, WIS.									
	Air mass								
	4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81
Dec. 9-----	0.80	0.91	1.03	----	----	----	----	----	----
15-----	.86	.96	1.10	----	----	----	----	----	----
16-----	.80	.95	1.06	----	----	----	----	----	----
17-----	.81	.94	1.08	----	----	----	----	----	----
Aver-ages	.82	.94	1.07	----	----	----	----	----	----
Departures	-.07	-.07	-.09	----	----	----	----	----	----
TABLE MOUNTAIN, CALIF.									
	Air mass								
	3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76
Dec. 3-----	----	----	----	1.48	----	----	----	----	----
4-----	----	----	----	1.51	----	----	----	----	----
8-----	----	----	----	1.54	----	----	----	----	----
9-----	----	----	----	1.53	----	----	----	----	----
10-----	----	----	----	1.53	----	----	----	----	----
11-----	----	----	----	1.53	----	----	----	----	----
12-----	----	----	----	1.55	----	----	----	----	----
13-----	----	----	----	1.54	----	----	----	----	----
14-----	----	----	----	1.50	----	----	----	----	----
15-----	----	----	----	1.49	----	----	----	----	----
21-----	----	----	----	1.56	----	----	----	----	----
22-----	----	----	----	1.56	----	----	----	----	----
26-----	----	----	----	1.53	----	----	----	----	----
Aver-ages	----	----	----	1.53	----	----	----	----	----
Departures	----	----	----	-.02	----	----	----	----	----
* Extrapolated									

Date	Sun's zenith distance								
	A. M.				0.0°	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
BLUE HILL, MASS.									
	Air mass								
	4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86
Dec. 1-----	1.10	1.19	1.29	----	----	----	1.21	1.10	0.99
3-----	----	----	----	----	----	----	----	----	.95
7-----	.88	.99	1.10	----	----	----	----	.92	.79
13-----	.87	.97	1.11	----	----	----	----	----	----
19-----	1.09	1.18	----	----	----	----	1.24	1.11	1.02
20-----	1.09	----	----	----	----	----	----	----	----
26-----	.83	.96	----	----	----	----	----	----	----
28-----	.95	1.05	1.21	----	----	----	1.14	1.05	.96
29-----	----	----	----	----	----	----	1.17	.99	.91
Aver-ages	.97	1.06	1.18	----	----	----	1.19	1.03	.94
Departures	+.06	+.02	+.02	----	----	----	+.04	.00	-.01
BOSTON, MASS.									
	Air mass								
	4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96
Dec. 17-----	----	1.11	1.27	----	----	----	1.17	1.11	0.99
24-----	----	.81	.99	----	----	----	1.02	----	----
29-----	----	----	----	----	----	----	1.03	.88	.83
Aver-ages	----	.91	1.13	----	----	----	1.07	1.00	.91
Departures	----	+.04	+.10	----	----	----	+.03	+.08	+.10
RATIO BOSTON/BLUE HILL ON COMPARABLE DATES									
	----	0.93	0.98	----	----	----	0.97	1.01	1.00
ALBUQUERQUE, N. MEX.									
	Air mass								
	4.08	3.26	2.44	1.63	*0.815	1.63	2.44	3.26	4.08
NO DATA DURING DECEMBER 1952									



# SOLAR RADIATION DATA

DECEMBER 1952

Table 31a Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during the month

	Avg							Avg							Avg								
Date	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
Langleys	45	41	23	37	38	34	27	35	39	8	15	37	33	44	35	30	42	55	45	39	31		
Date	21	25	26	27	28	29	30	31	Avg							Avg							
Langleys	44	77	68	10	43	50	46	27	41														

Table 31b Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing east at Blue Hill, Mass. during the month

								Avg									Avg									Avg	
Date	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Avg		17	18	19	20	21	22	23				
Langleys	14	140	43	126	146	76	27	87	49	6	13	152	34	50	35	49	136	122	165	164	14	6	21	90			
Date	24	25	26	27	28	29	30	31	Avg																		
Langleys	93	109	111	65	162	153	46	21	95																		

Table 31c Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

	Avg															Avg										Avg
Date-----	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
Langleys--	86	118	30	317	437	116	23	197	106	1	16	358	72	91	156	114	470	332	487	477	9	5	---	297		
Date-----	24	25	26	27	28	29	30	31	Avg																	
Langleys--	--	--	--	--	--	--	--	20	--																	

Table 31d Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing west at Blue Hill, Mass. during the month

	Avg							Avg														Avg		
Date	3	4	5	6	7	8	9	10	11	12	13	14	15	16		17	18	19	20	21	22	23		
Langleys	62	151	39	32	137	39	31	79	63	5	17	83	72	46	61	49	136	91	162	124	12	7	20	79
Date	24	25	26	27	28	29	30	31	Avg							Avg								
Langleys	125	48	81	82	151	151	78	24	92															

Table 31e Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

	Avg							Avg							Avg								
Date	3	4	5	6	7	8	9	10	11	12	13	14	15	16		17	18	19	20	21	22	23	
Langleys	68	64	54	51	40	66	48	56	70	7	18	47	51	58	55	45	39	86	48	31	29	2	
Date	24	25	26	27	28	29	30	31	Avg							Avg							
Langleys	67	56	70	78	33	41	70	37	56														

Note Langley is the unit used to denote one gram calorie per square centimeter



# SOLAR RADIATION DATA

Table 33.—Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleyrs.

	Albuquerque N. Mex.	Apalachicola, Fla.	Atlanta, Ga.	Bethel, Alaska	Bismarck, N. Dak.	Boise, Idaho	Boston, Mass.	Brownsville, Tex	Charleston, S.C.	Columbia, Mo.	Columbus, Ohio	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	F. Wareham, Mass	Edmonton, Alberta	El Paso, Tex.	Ely, Nev	Fairbanks, Alaska	Ft. Worth, Tex.	Fresno, Calif.	Grand Junction, Colo.	Grand Lake, Colo.	Great Falls, Mont.	Griffin, Ga.	Hattaras, N. C	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y	Lander, Wyo.	Las Vegas, Nev.	Lincoln, Neb.		
1952																																		
December 3--	(252)	322	63	51	12	94	---	329	271	82	89	218	332	116	89	90	374	(270)	8	38	(310)	241	149	197	53	56	69	---	99	226	338	74		
December 4--	365	135	124	8	194	180	91	171	274	227	71	84	99	314	36	143	85	374	203	---	(373)	319	254	113	187	70	34	---	237	231	330	177		
December 5--	303	352	233	18	201	68	100	44	---	47	290	48	89	303	4	71	60	---	---	8	(393)	198	251	152	214	184	56	---	29	214	147	226		
December 6--	345	405	343	17	176	165	75	162	449	336	228	223	180	148	31	113	50	---	---	13	(248)	153	198	148	341	323	205	---	45	226	295	163		
December 7--	335	382	248	33	117	189	135	184	206	331	265	185	181	307	157	172	24	372	(241)	13	(85)	171	63	103	250	308	192	---	184	101	181	223		
December 8--	285	272	177	52	85	100	150	81	420	169	203	115	86	298	79	144	44	362	(219)	7	371	(246)	159	105	131	116	299	130	---	129	307	306	208	
December 9--	303	291	144	14	89	58	182	64	425	289	191	79	47	306	54	51	94	367	(242)	13	(187)	339	158	180	227	286	87	---	109	237	308	144		
Averages--	(314)	310	189	29	125	122	131	118	351	239	191	118	114	287	68	112	64	362	(242)	10	(290)	211	168	146	195	208	111	---	119	206	272	174		
Departures--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
December 10--	347	325	128	11	170	103	88	102	441	223	105	50	116	(302)	28	114	85	371	219	14	397	288	276	172	---	124	248	24	273	222	315	231		
December 11--	326	390	331	27	98	9	177	16	435	325	252	75	82	(291)	13	37	78	351	(216)	8	384	186	258	168	107	306	133	101	273	222	315	231		
December 12--	339	349	325	51	200	21	159	34	419	328	199	42	121	262	94	38	64	377	(277)	5	382	134	276	79	128	269	317	37	283	220	306	213		
December 13--	332	370	328	22	66	162	97	171	412	328	95	99	87	308	66	188	71	(353)	(271)	4	161	63	247	57	134	301	306	115	286	183	302	31		
December 14--	332	152	331	36	---	66	145	62	438	95	103	112	53	---	56	85	67	350	(284)	5	388	83	278	225	176	283	47	96	284	186	212	305	225	
December 15--	335	375	308	29	193	90	226	88	437	319	285	44	36	285	52	67	41	352	264	8	374	185	281	259	173	277	269	158	283	38	215	305	212	
December 16--	313	381	326	35	177	105	121	102	151	317	225	71	287	150	114	64	---	(192)	2	361	57	255	258	171	295	318	224	170	51	203	139	219		
Averages--	332	335	295	30	(150)	79	130	82	30	276	188	93	81	(289)	66	95	67	(356)	(255)	7	350	139	267	174	148	268	234	108	267	86	210	283	195	
Departures--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
December 17--	235	275	308	17	156	191	95	208	257	314	237	216	79	215	101	183	54	256	(210)	1	320	64	98	149	38	261	316	211	62	184	161	93	198	
December 18--	139	353	309	10	96	188	80	171	271	323	35	4	77	(46)	166	159	98	176	(145)	2	88	85	69	67	95	287	268	166	245	144	230	129	181	
December 19--	312	358	308	13	53	199	106	196	337	283	40	---	27	180	92	---	27	238	108	4	139	63	104	148	114	253	250	27	178	79	208	182	30	
December 20--	(252)	228	54	20	102	200	103	164	407	109	46	---	31	180	T	193	73	283	63	4	358	185	109	205	84	44	51	17	197	108	173	43	219	
December 21--	148	308	269	22	42	31	144	45	---	100	44	---	246	80	4	46	89	290	137	3	145	164	138	175	167	173	86	11	278	22	114	382	39	
December 22--	331	351	262	10	197	13	136	23	324	266	31	---	200	204	14	25	67	350	125	3	374	258	195	121	139	128	74	14	296	136	82	232	82	
December 23--	131	205	53	12	117	33	301	50	203	198	50	34	226	276	4	62	79	364	173	3	336	194	188	216	90	25	87	11	269	92	180	313	128	
Averages--	(221)	297	223	15	110	122	138	122	311	228	69	---	155	(170)	54	112	70	279	(137)	3	251	145	129	140	104	167	162	65	218	109	164	196	125	
Departures--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December 24--	218	348	109	22	42	143	183	176	174	117	79	20	59	(266)	5	123	55	356	237	3	245	100	265	267	179	35	147	26	163	33	272	165	95	
December 25--	184	85	92	15	95	124	221	167	52	37	91	49	123	260	4	166	87	347	158	4	383	277	210	291	159	23	25	49	33	208	289	241	289	
December 26--	298	131	303	19	24	116	174	130	78	226	247	56	123	---	71	167	(68)	239	269	6	268	268	214	266	159	234	285	125	296	36	225	315	247	
December 27--	336	105	129	40	---	137	81	123	56	125	99	123	141	(59)	298	260	4	199	252	280	131	102	178	178	148	102	234	264	92	234	264	92	234	
December 28--	286	229	307	45	147	204	190	207	60	188	(270)	247	201	(323)	137	208	57	(304)	287	10	367	293	212	202	162	255	157	229	217	189	249	265	232	
December 29--	340	234	314	28	190	199	123	195	89	314	202	184	84	(325)	55	202	76	208	259	3	150	234	208	186	222	334	154	288	169	264	294	225	225	
December 30--	340	148	69	25	(197)	106	64	107	258	68	267	196	81	(319)	58	83	35	363	180	8	41	(35)	261	235	123	21	127	197	180	23	179	255	227	
December 31--	165	209	59	16	161	45	221	43	128	33	39	107	---	28	43	85	293	160	12	375	(174)	169	208	173	21	48	29	184	51	117	287	179	179	
Averages--	271	185	173	26	122	135	157	144	151	150	(162)	114	134	(305)	64	142	(65)	(301)	227	6	254	(205)	227	241	159	114	166	123	223	90	208	267	192	
Departures--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December 32--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December 33--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December 34--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December 35--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December 36--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December 37--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December 38--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December 39--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December 40--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December 41--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December 42--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December 43--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December 44--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December 45--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
December 46--	---	---	---	---																														

Accumulated Departures January 1 to December 31, 1952

Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.







# SOLAR RADIATION DATA

Table 33.—Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. — Continued

1952	Put-In-Bay, Ohio	AUGUST	Put-In-Bay, Ohio	SEPTEMBER	Put-In-Bay, Ohio	OCTOBER	Edmonton, Alberta	Inyokern, Calif.	Ottawa, Ontario	Put-In-Bay, Ohio	Seattle, Wash. (U. of W.)	Winnipeg, Manitoba	Put-In-Bay, Ohio	NOVEMBER	Put-In-Bay, Ohio	DECEMBER	Put-In-Bay, Ohio	Swan Island, B.W.I.
July 2-----	665	Aug. 6	463	Sept. 3	371	Oct. 1	335	898	252	339	242	229	257	Nov. 5	257	Dec. 3	60	397
July 3-----	350	Aug. 7	677	Sept. 4	584	Oct. 2	370	941	162	194	312	340	222	Nov. 6	222	Dec. 4	83	378
July 4-----	732	Aug. 8	586	Sept. 5	554	Oct. 3	386	926	164	401	322	340	205	Nov. 7	205	Dec. 5	33	202
July 5-----	764	Aug. 9	163	Sept. 6	352	Oct. 4	365	866	344	411	322	183	149	Nov. 8	149	Dec. 6	34	330
July 6-----	748	Aug. 10	611	Sept. 7	474	Oct. 5	321	937	104	202	348	274	152	Nov. 9	152	Dec. 7	213	384
July 7-----	696	Aug. 11	200	Sept. 8	551	Oct. 6	321	871	86	261	348	(207)	293	Nov. 10	293	Dec. 8	110	38
July 8-----	445	Aug. 12	216	Sept. 9	514	Oct. 7	304	921	107	413	225	183	261	Nov. 11	261	Dec. 9	30	163
Averages-----	628	Averages	417	Averages	487	Averages	313	909	160	318	307	(220)	191	Averages	191	Averages	80	270
Departures-----	---	Depart.	---	Depart.	---	Depart.	---	---	---	---	---	---	---	Depart.	---	Depart.	---	---
July 9-----	259	Aug. 13	430	Sept. 10	511	Oct. 8	308	920	202	410	218	354	162	Nov. 12	162	Dec. 10	31	315
July 10-----	741	Aug. 14	475	Sept. 11	463	Oct. 9	199	912	321	388	77	235	258	Nov. 13	258	Dec. 11	45	118
July 11-----	711	Aug. 15	330	Sept. 12	465	Oct. 10	299	925	379	100	182	268	197	Nov. 14	197	Dec. 12	33	---
July 12-----	658	Aug. 16	433	Sept. 13	491	Oct. 11	297	908	403	377	177	261	192	Nov. 15	192	Dec. 13	56	378
July 13-----	640	Aug. 17	560	Sept. 14	182	Oct. 12	197	923	340	345	253	269	198	Nov. 16	198	Dec. 14	113	324
July 14-----	481	Aug. 18	620	Sept. 15	505	Oct. 13	141	955	266	295	226	109	169	Nov. 17	169	Dec. 15	50	285
July 15-----	626	Aug. 19	647	Sept. 16	517	Oct. 14	268	947	351	304	324	170	84	Nov. 18	84	Dec. 16	208	423
Averages-----	588	Averages	499	Averages	448	Averages	244	927	323	317	208	238	180	Averages	180	Averages	77	307
Departures-----	---	Depart.	---	Depart.	---	Depart.	---	---	---	---	---	---	---	Depart.	---	Depart.	---	---
July 16-----	264	Aug. 20	484	Sept. 17	478	Oct. 15	64	949	29	190	265	333	23	Nov. 19	23	Dec. 17	197	336
July 17-----	331	Aug. 21	402	Sept. 18	96	Oct. 16	202	766	224	378	209	281	19	Nov. 20	19	Dec. 18	184	378
July 18-----	498	Aug. 22	442	Sept. 19	380	Oct. 17	232	543	238	202	284	151	83	Nov. 21	83	Dec. 19	95	305
July 19-----	537	Aug. 23	660	Sept. 20	389	Oct. 18	256	1033	150	370	196	274	165	Nov. 22	165	Dec. 20	15	296
July 20-----	636	Aug. 24	639	Sept. 21	362	Oct. 19	256	1029	187	337	138	299	29	Nov. 23	29	Dec. 21	17	458
July 21-----	588	Aug. 25	598	Sept. 22	418	Oct. 20	245	976	263	282	73	256	160	Nov. 24	160	Dec. 22	62	464
July 22-----	610	Aug. 26	556	Sept. 23	369	Oct. 21	243	1038	167	380	155	277	39	Nov. 25	39	Dec. 23	30	357
Averages-----	495	Averages	540	Averages	356	Averages	214	905	188	305	188	267	74	Averages	74	Averages	86	371
Departures-----	---	Depart.	---	Depart.	---	Depart.	---	---	---	---	---	---	---	Depart.	---	Depart.	---	---
July 23-----	630	Aug. 27	510	Sept. 24	485	Oct. 22	232	1052	315	359	37	288	95	Nov. 26	95	Dec. 24	37	412
July 24-----	709	Aug. 28	518	Sept. 25	405	Oct. 23	226	1068	141	356	74	262	70	Nov. 27	70	Dec. 25	48	421
July 25-----	707	Aug. 29	408	Sept. 26	402	Oct. 24	194	1050	336	327	191	258	153	Nov. 28	153	Dec. 26	35	457
July 26-----	507	Aug. 30	475	Sept. 27	461	Oct. 25	187	996	257	371	234	213	153	Nov. 29	153	Dec. 27	162	465
July 27-----	676	Aug. 31	274	Sept. 28	460	Oct. 26	212	1105	292	225	114	177	210	Nov. 30	210	Dec. 28	162	459
July 28-----	325	Sept. 1	490	Sept. 29	408	Oct. 27	144	892	170	219	109	156	66	Dec. 1	66	Dec. 29	163	415
July 29-----	652	Sept. 2	170	Sept. 30	471	Oct. 28	128	1044	257	86	128	247	44	Dec. 2	44	Dec. 30	101	434
Averages-----	601	Averages	406	Averages	442	Averages	179	1029	253	278	129	229	105	Averages	105	Averages	16	457
Departures-----	---	Depart.	---	Depart.	---	Depart.	---	---	---	---	---	---	---	Depart.	---	Depart.	---	---
July 30-----	663	Aug. 1	708	Sept. 31	442	Oct. 29	97	---	---	---	---	---	97	Nov. 30	97	Averages	97	440
August 1-----	708	Aug. 2	565	Oct. 30	442	Oct. 30	147	---	---	---	---	---	---	Dec. 1	---	---	---	---
August 2-----	706	Aug. 3	597	Oct. 31	442	Oct. 31	209	---	---	---	---	---	---	Dec. 2	---	---	---	---
August 3-----	565	Aug. 4	523	Nov. 1	442	Nov. 1	162	---	---	---	---	---	---	Dec. 3	---	---	---	---
August 4-----	597	Aug. 5	584	Nov. 2	442	Nov. 2	147	---	---	---	---	---	---	Dec. 4	---	---	---	---
August 5-----	330	Aug. 6	584	Nov. 3	442	Nov. 3	140	---	---	---	---	---	---	Dec. 5	---	---	---	---
August 6-----	523	Aug. 7	584	Nov. 4	442	Nov. 4	184	---	---	---	---	---	---	Dec. 6	---	---	---	---
Averages-----	584	Averages	406	Averages	442	Averages	155	---	---	---	---	---	---	Averages	155	Averages	168	---
Departures-----	---	Depart.	---	Depart.	---	Depart.	---	---	---	---	---	---	---	Depart.	---	Depart.	---	---

Note. ---Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.







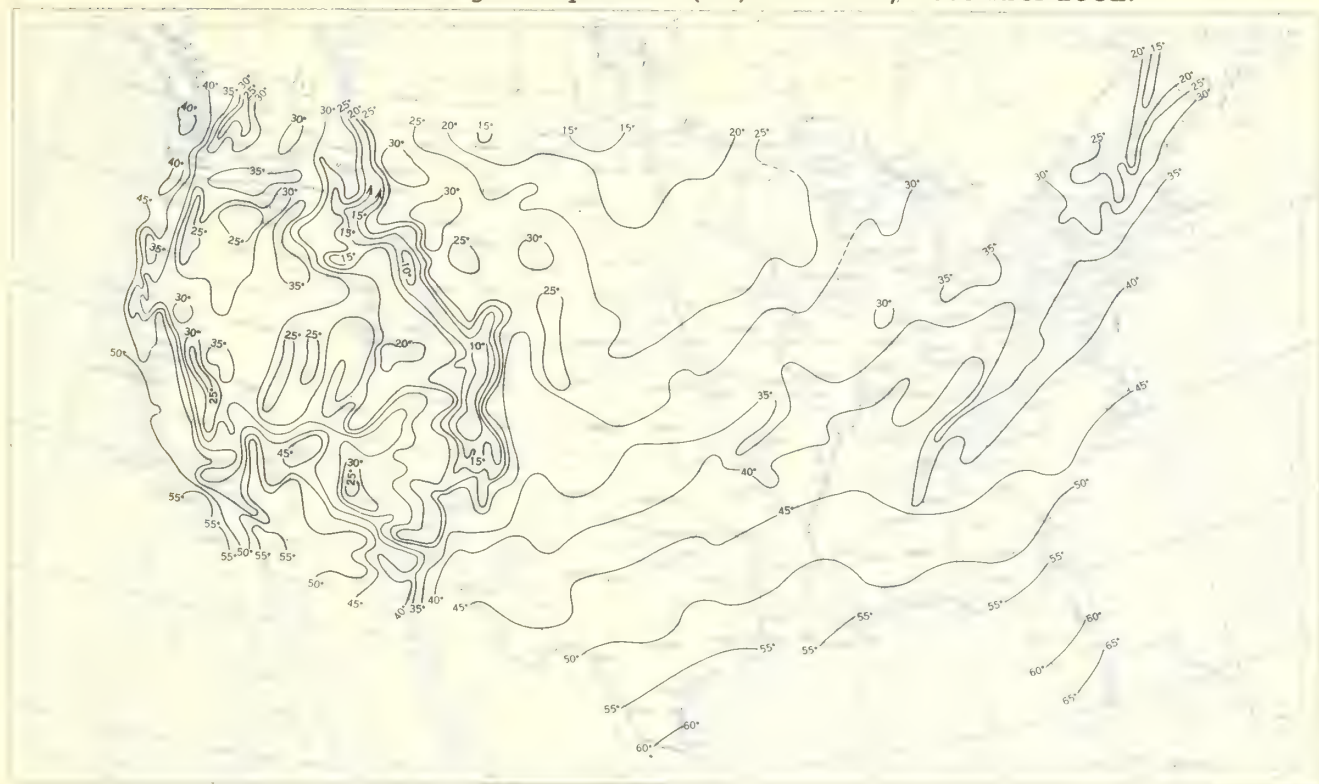




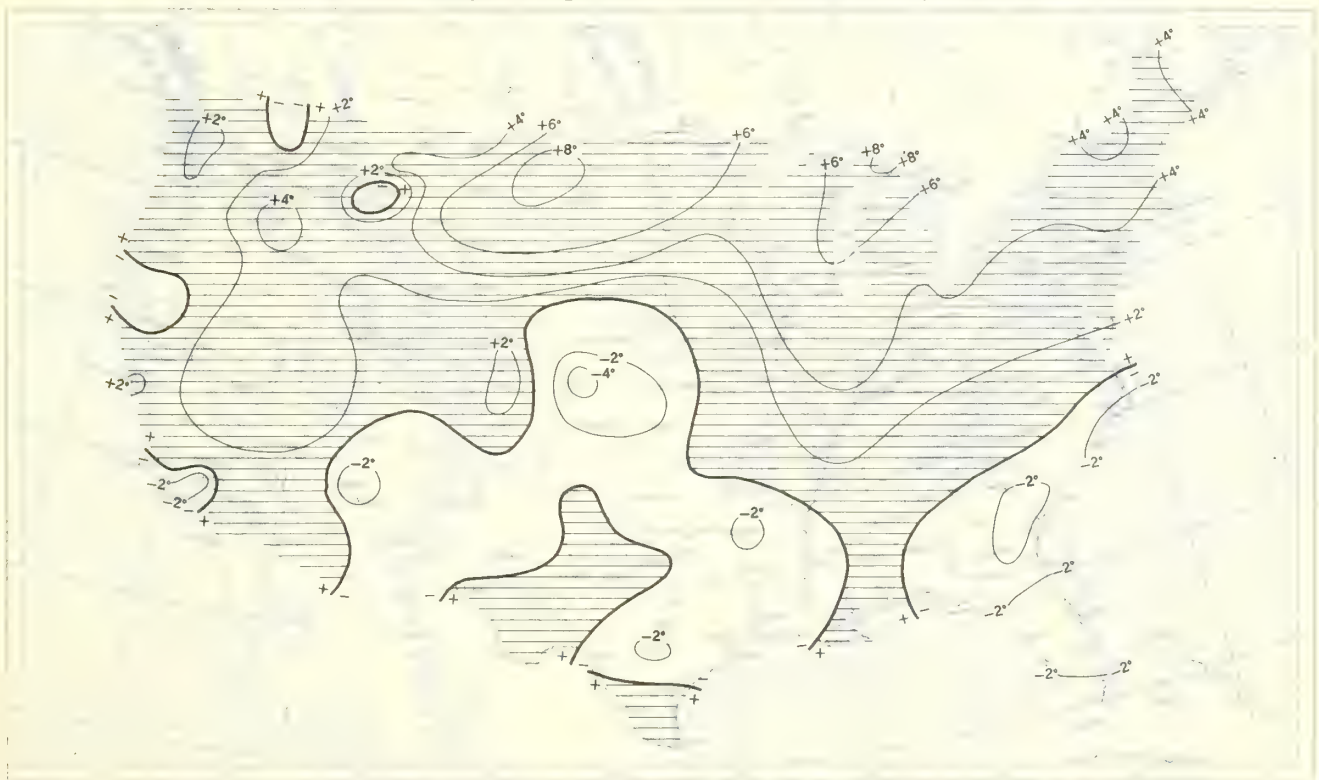




Chart I. A. Average Temperature ( $^{\circ}\text{F.}$ ) at Surface, December 1952.



B. Departure of Average Temperature from Normal ( $^{\circ}\text{F.}$ ), December 1952.



A. Based on reports from 800 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Normal average monthly temperatures are computed for Weather Bureau stations having at least 10 years of record.



Chart II. Total Precipitation (Inches), December 1952.



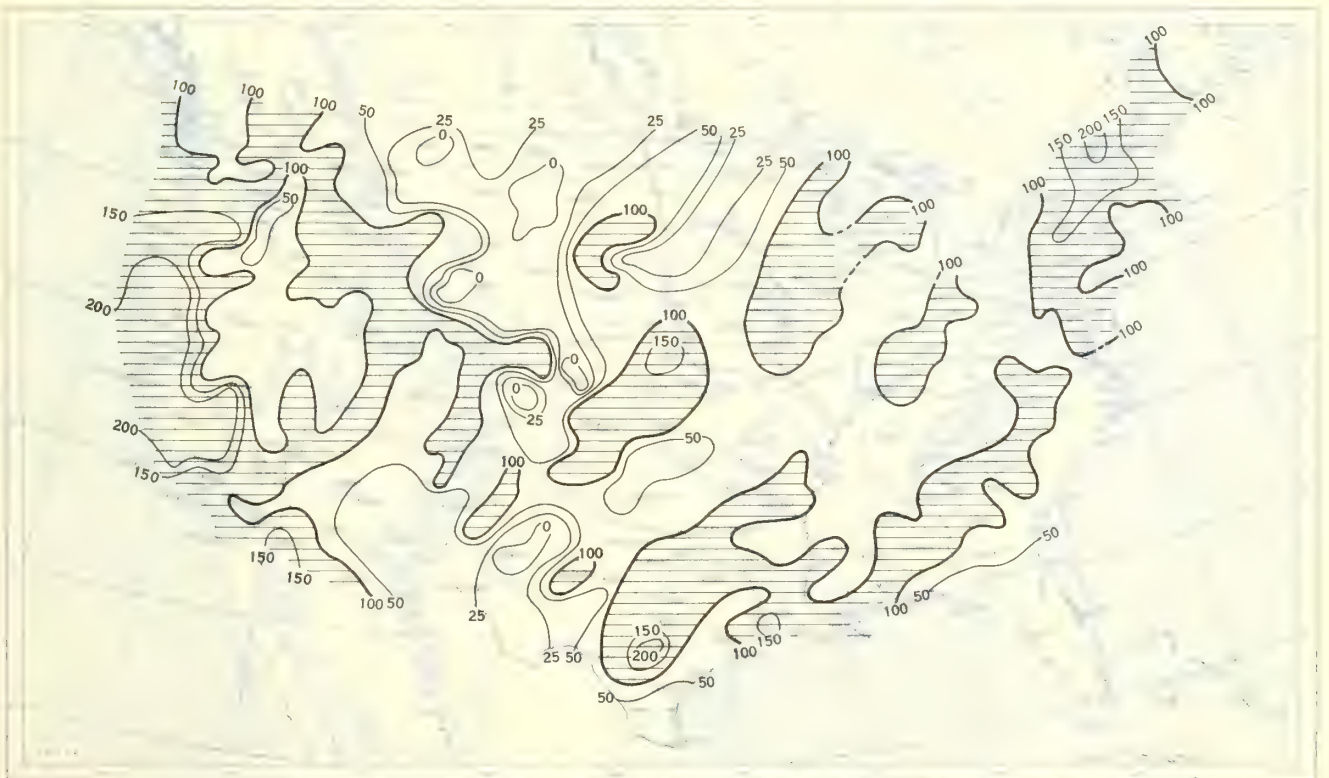
Based on daily precipitation records at 800 Weather Bureau and cooperative stations.



Chart III. A. Departure of Precipitation from Normal (Inches), December 1952.



B. Percentage of Normal Precipitation, December 1952.



Normal monthly precipitation amounts are computed for stations having at least 10 years of record.



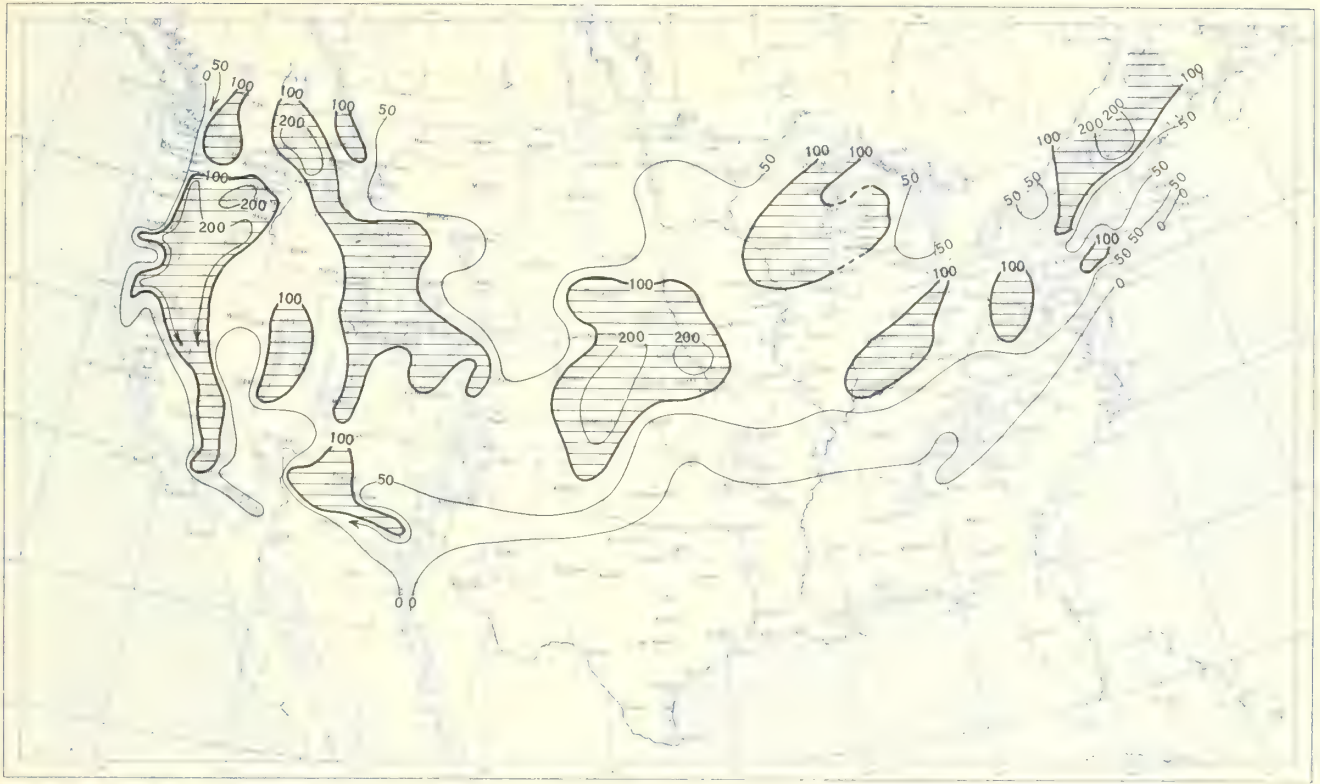
Chart IV. Total Snowfall (Inches), December 1952.



This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.



Chart V. A. Percentage of Normal Snowfall, December 1952.



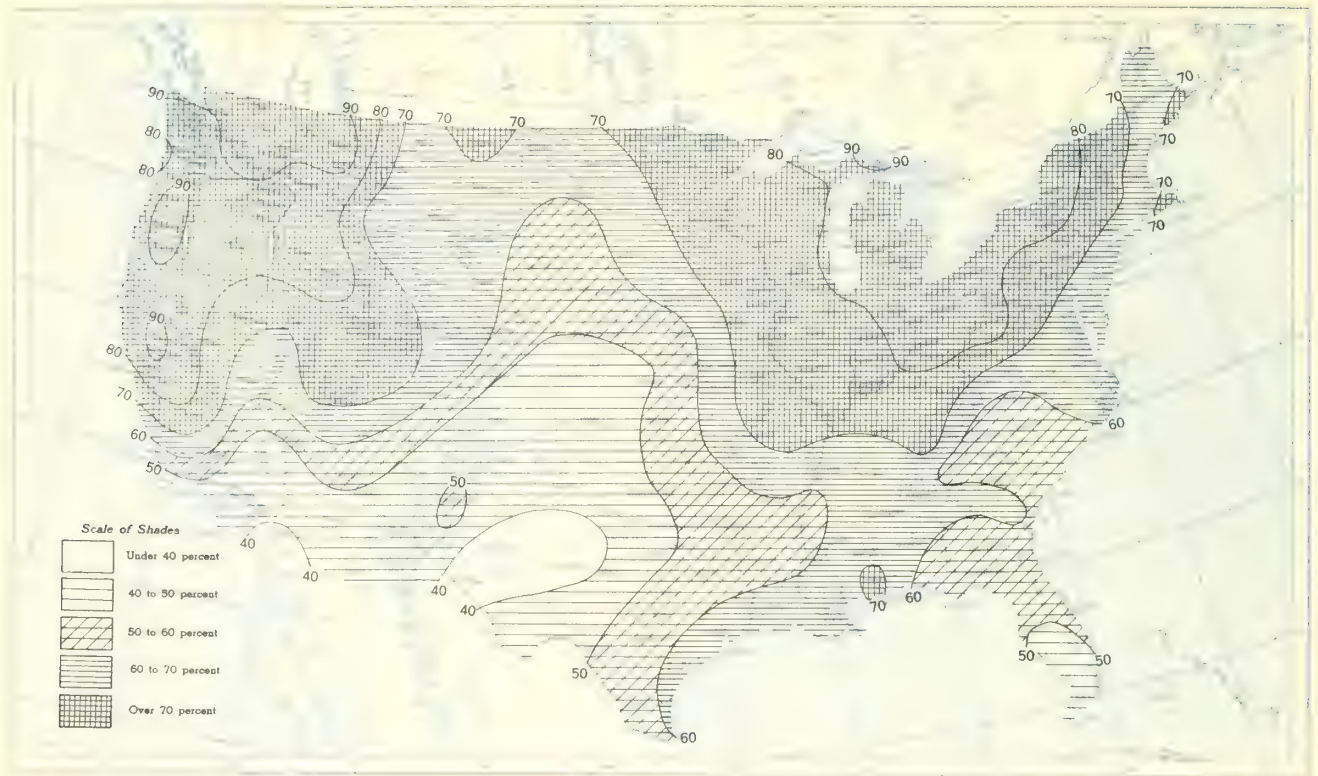
B. Depth of Snow on Ground (Inches), 7:30 a. m. E. S. T., December 30, 1952.



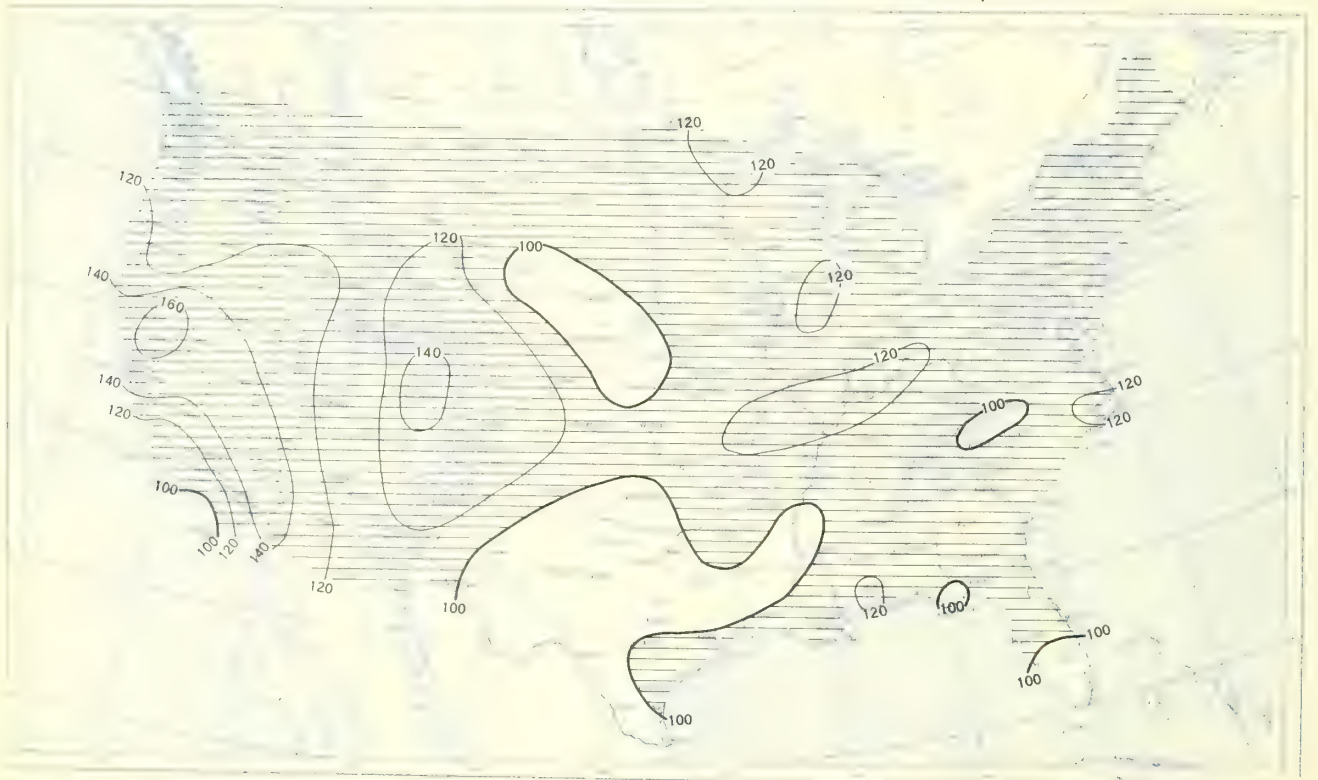
A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.  
 B. Shows depth currently on ground at 7:30 a. m. E. S. T., of the Tuesday nearest the end of the month. It is based on reports from Weather Bureau and cooperative stations. Dashed line shows greatest southern extent of snowcover during month.



Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, December 1952.



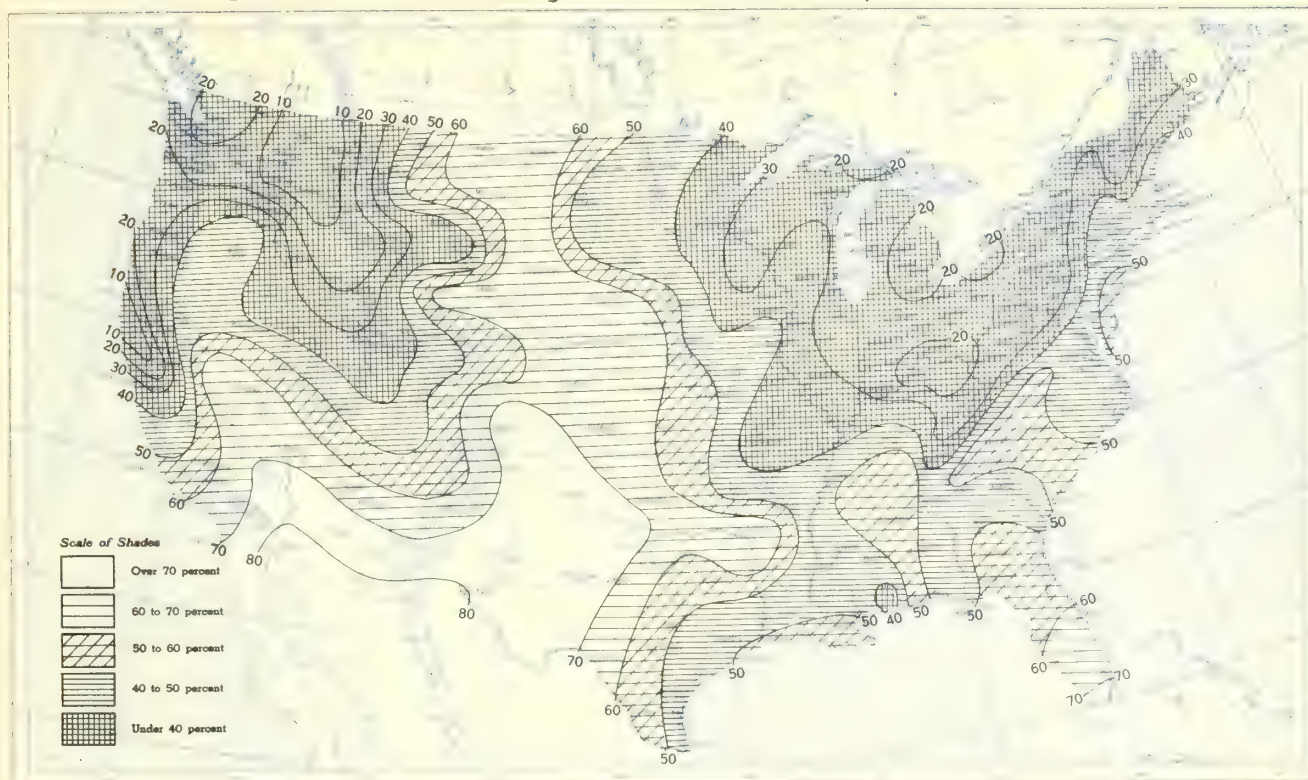
B. Percentage of Normal Sky Cover Between Sunrise and Sunset, December 1952.



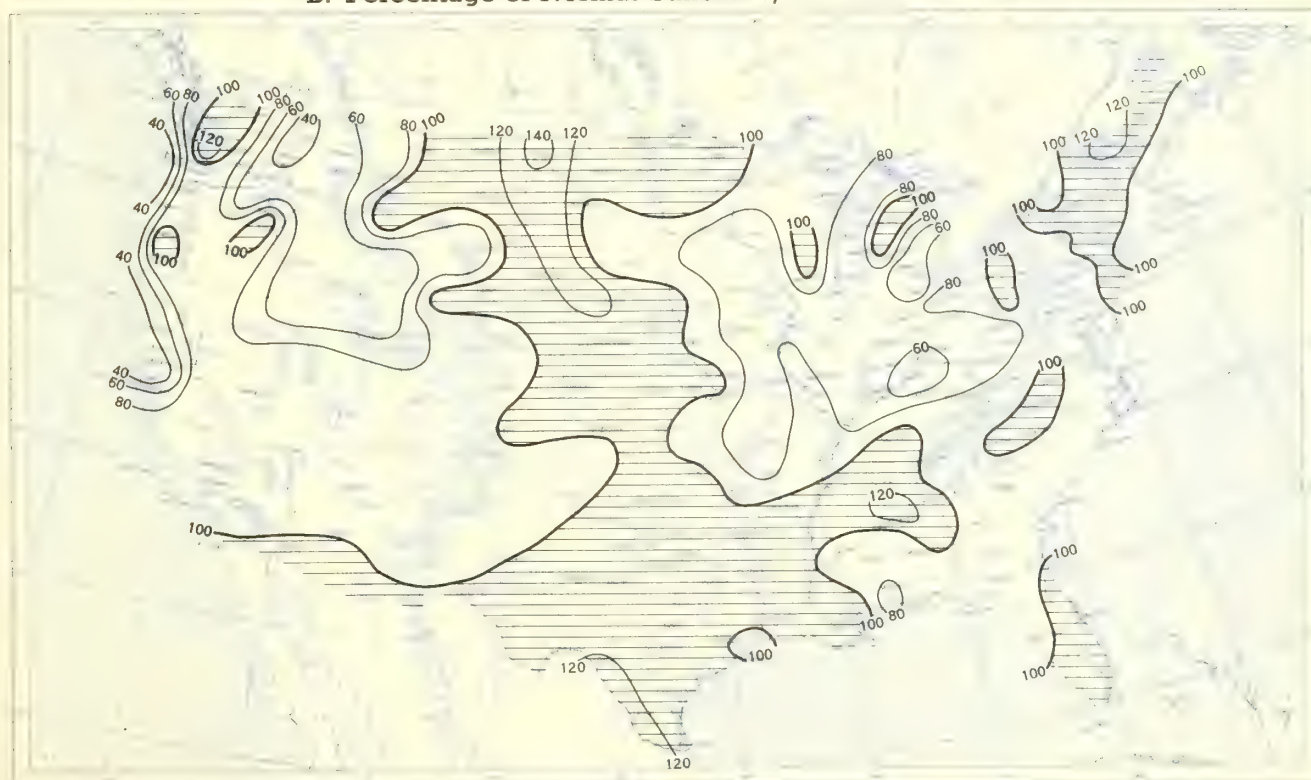
A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.



Chart VII. A. Percentage of Possible Sunshine, December 1952.



B. Percentage of Normal Sunshine, December 1952.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.



Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, December 1952. Inset: Percentage of Normal Average Daily Solar Radiation, December 1952.

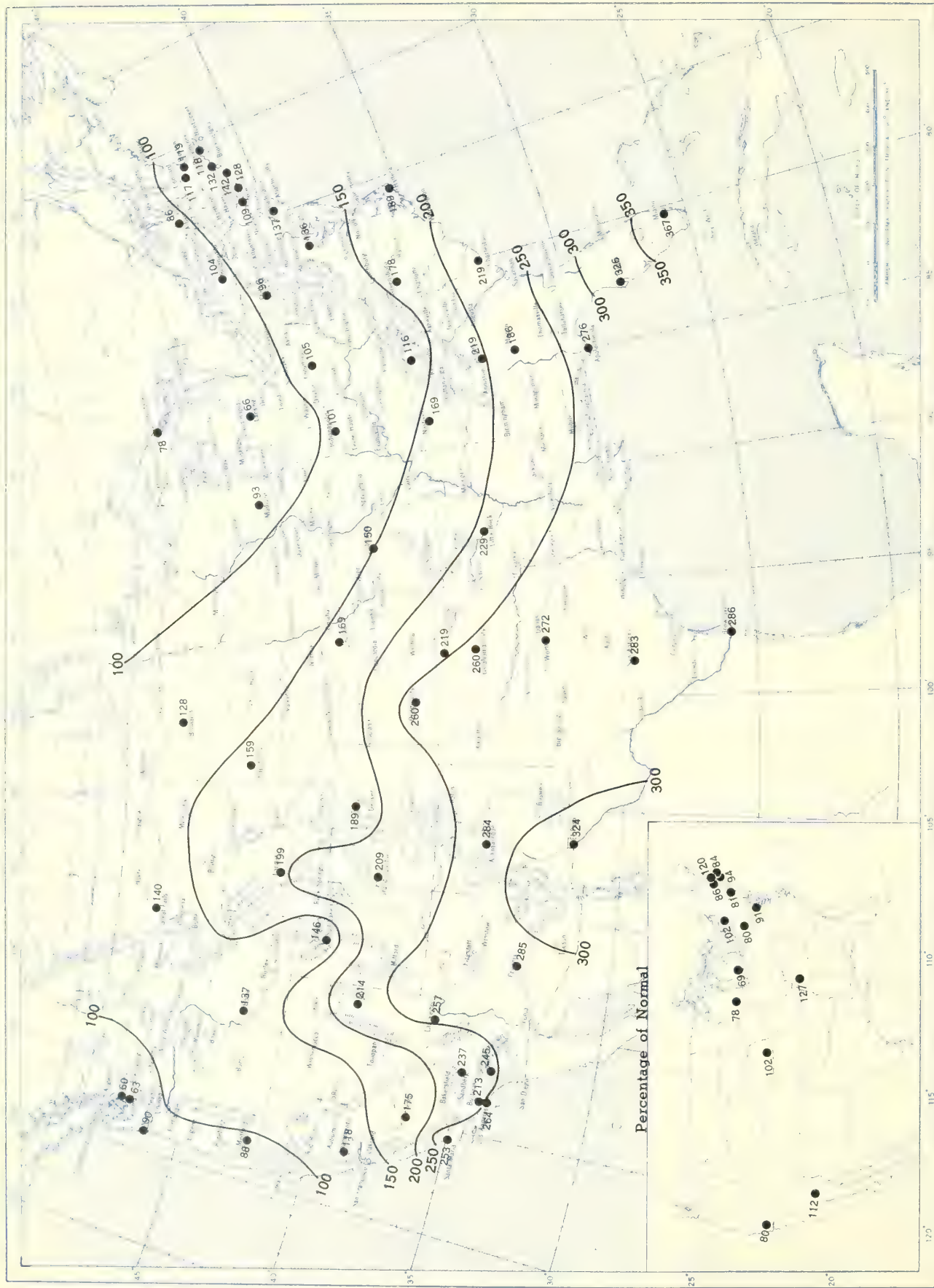
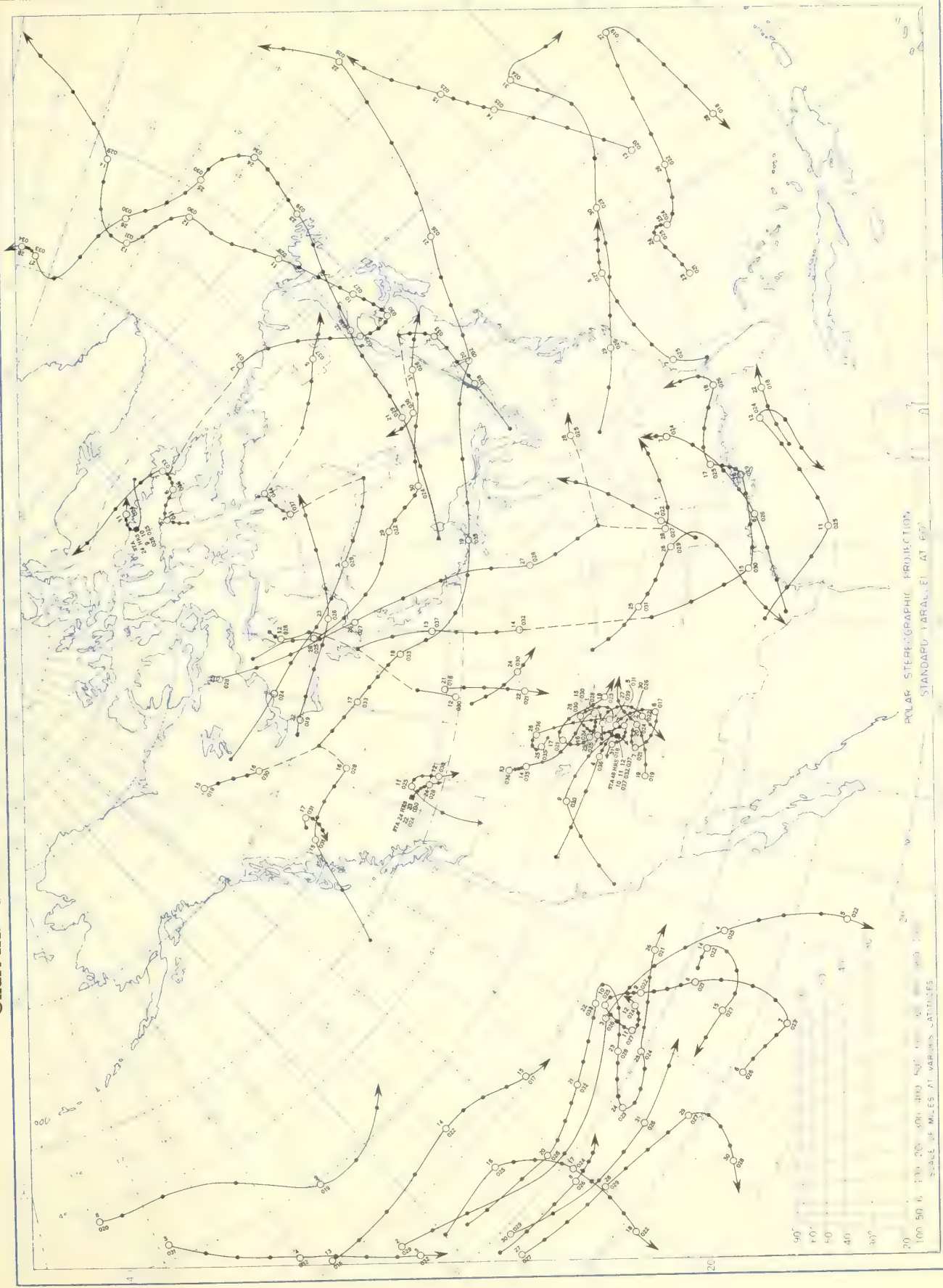


Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langley's (1 langley = 1 gm. cal. cm.  $^{-2}$ ). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown. Normals



are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown on chart.

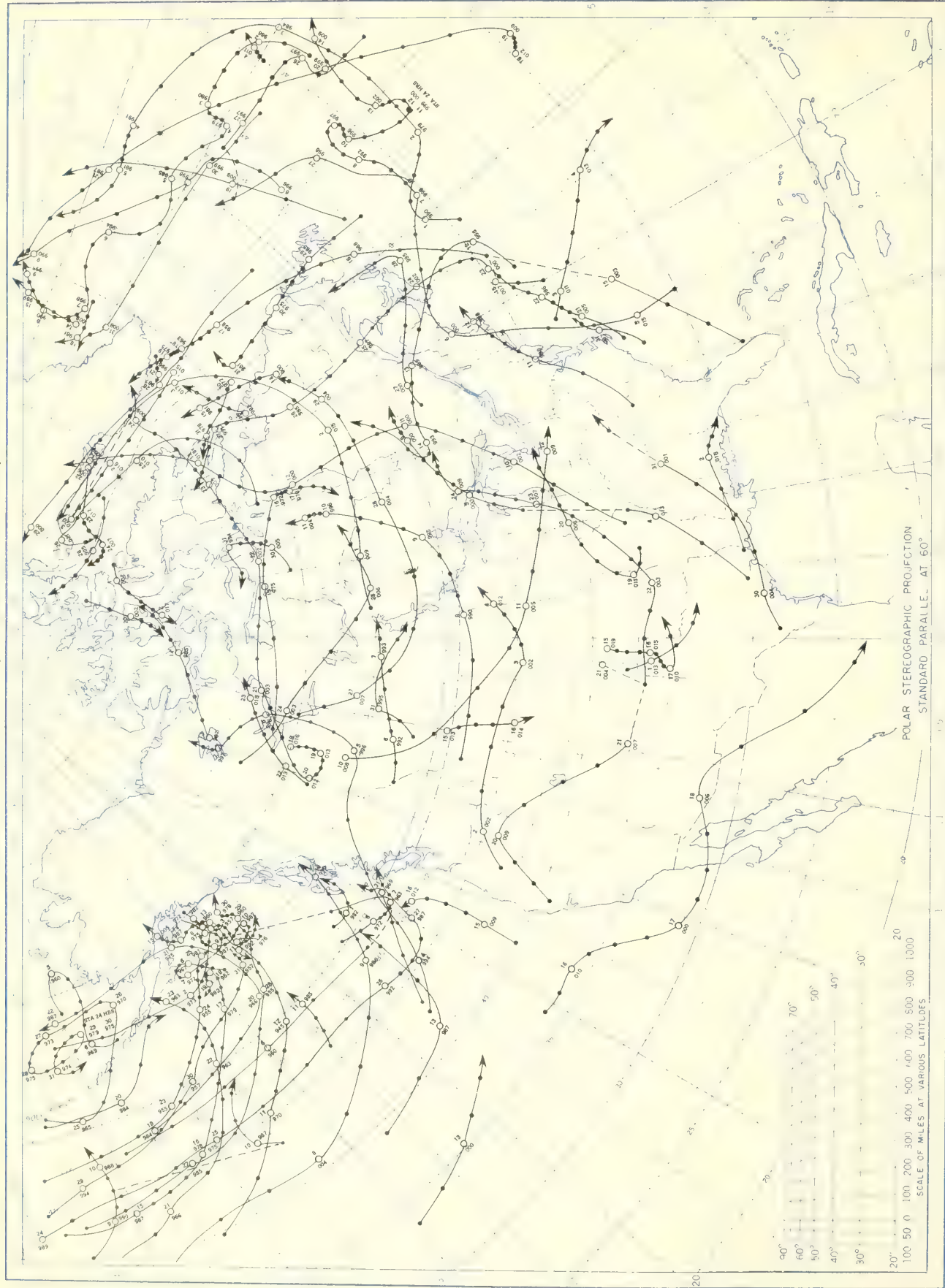
Chart IX. Tracks of Centers of Anticyclones at Sea Level, December 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



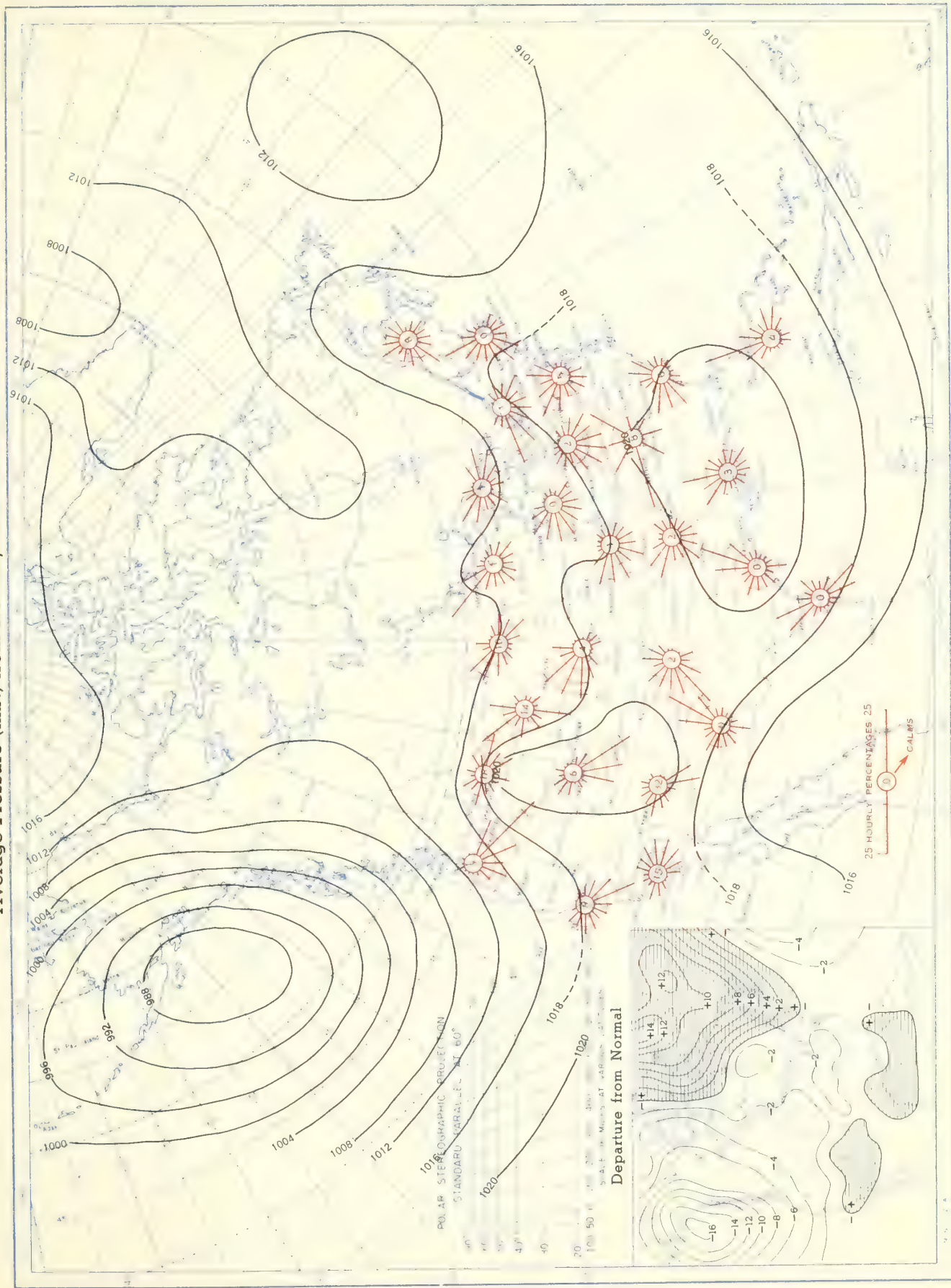
Chart X. Tracks of Centers of Cyclones at Sea Level, December 1952.



Circle indicates position of center at 7:30 a. m. E. S. T. See Chart IX for explanation of symbols.



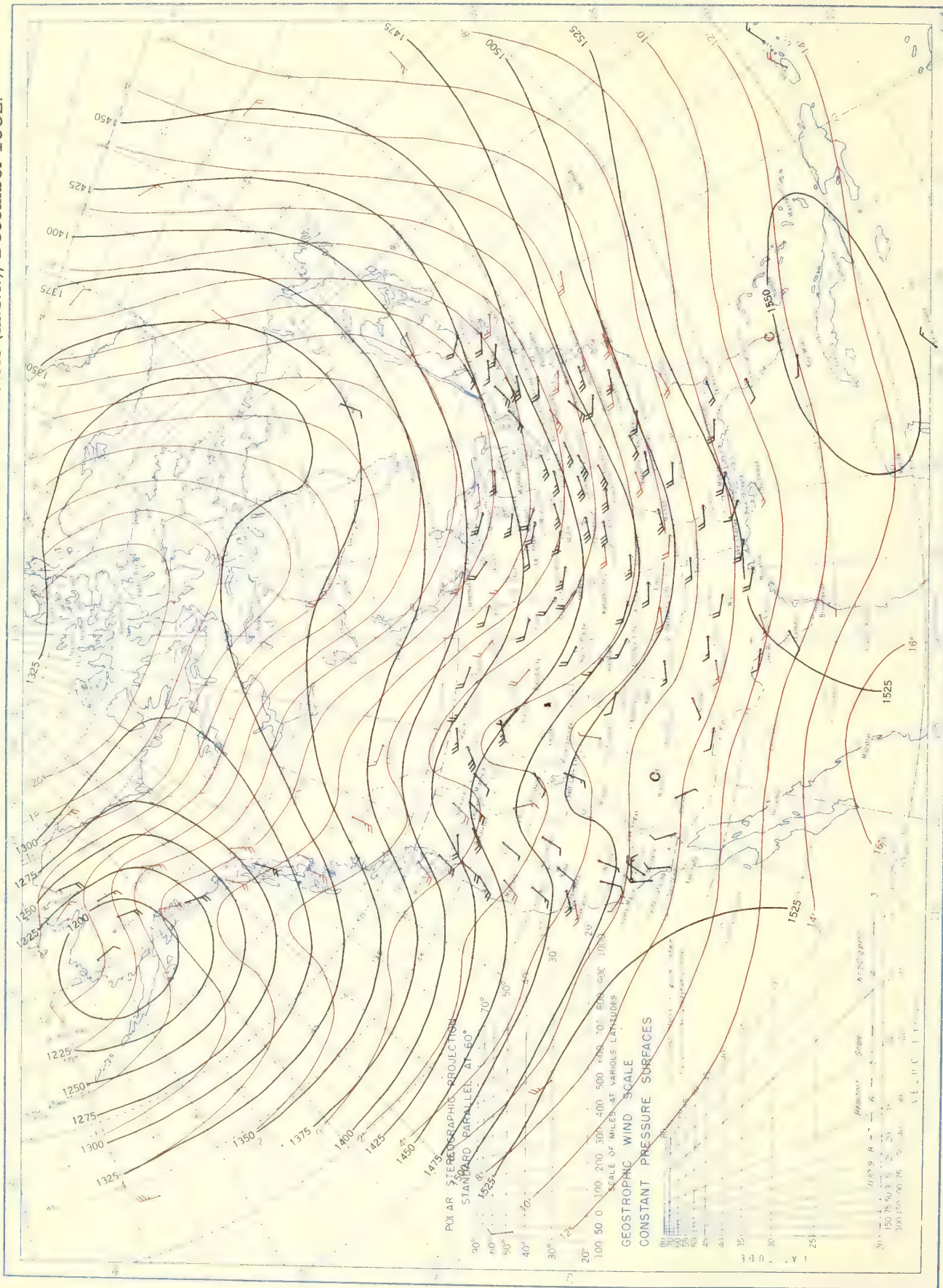
Chart XI. Average Sea Level Pressure (mb.) and Surface Winds, December 1952.  
Average Pressure (mb.) from Normal, December 1952.



Average sea level pressures are obtained from the averages of the 7:30 a. m. and 7:30 p. m. E. S. T. readings. Winds show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° inter-sections in a diamond grid based on readings from the Historical Weather Maps (1899-1939), for the 20 years of most complete data coverage prior to 1940.



Chart XII. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 850-mb. Pressure Surface, Average Temperature in °C. at 850 mb., and Resultant Winds at 1500 Meters (m.s.l.), December 1952.

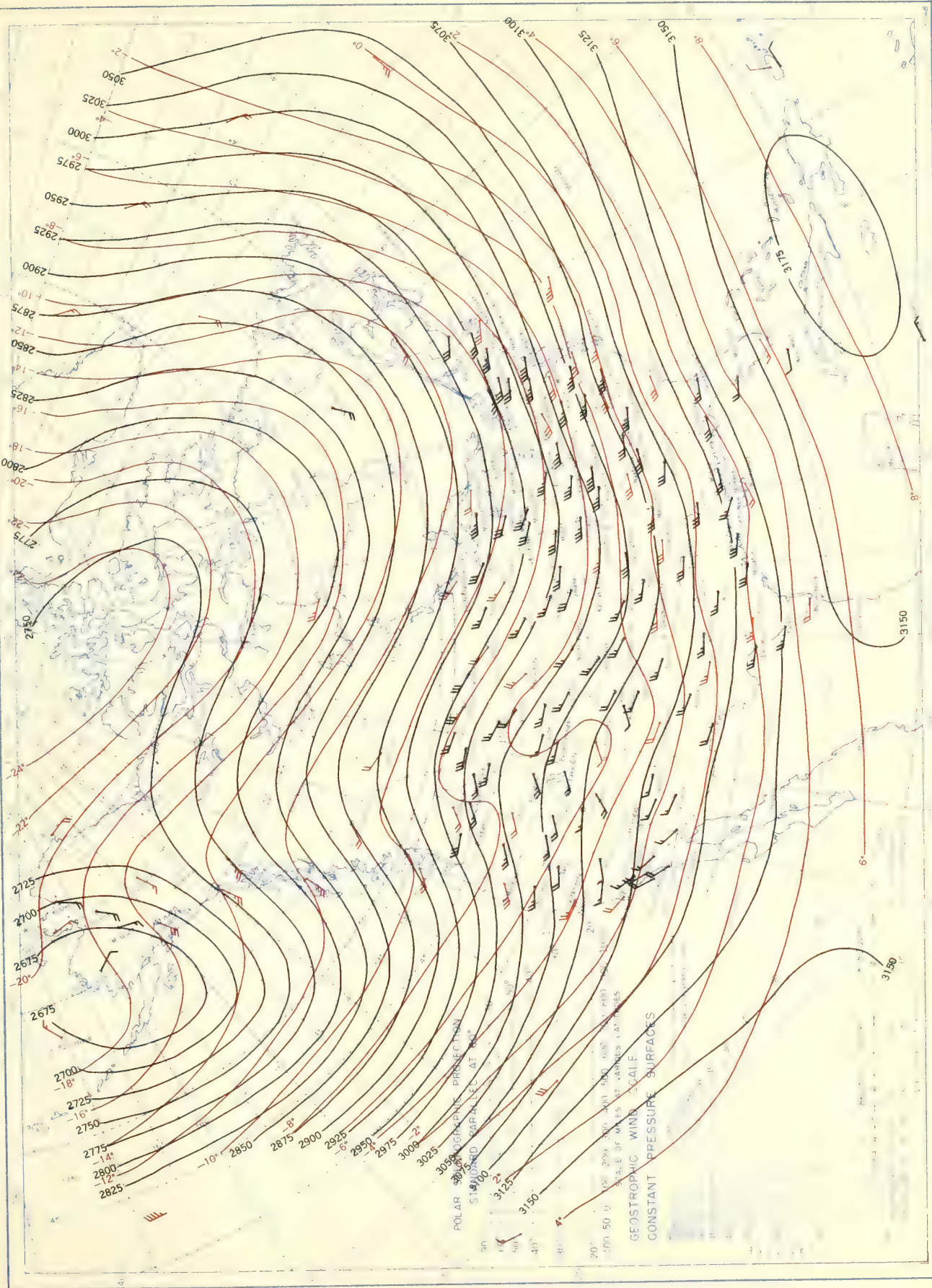


Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0300 G. M. T.



those shown in red are based on rawins taken at 0300 G. M. T. and on pilot balloon observations at 2100 G. M. T.

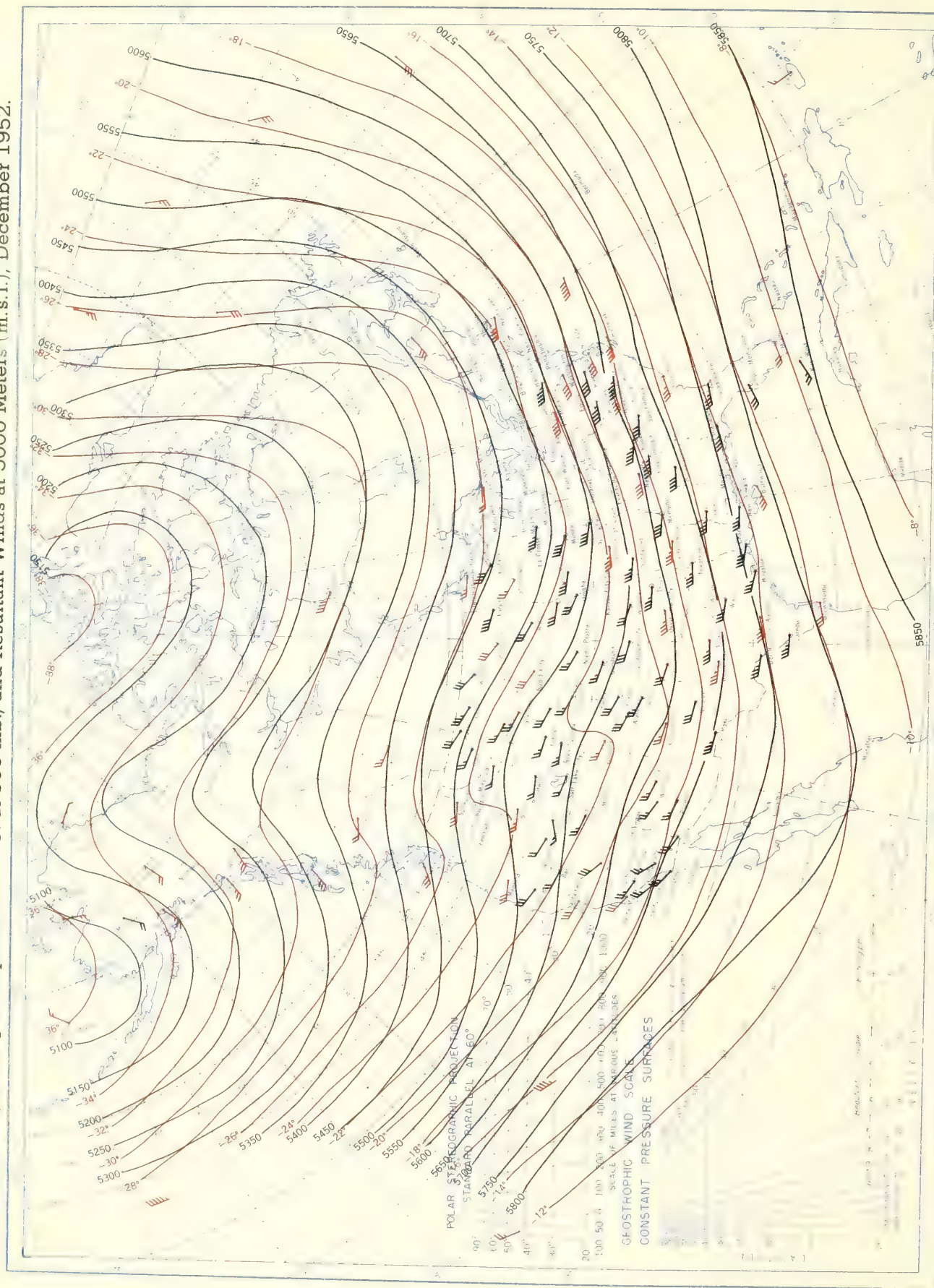
Chart XIII. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.30 dynamic meters) or 100 ft. at 1000 mb., Surface, Average Temperature in °C. at 700 mb., and Resultant Winds at 3000 Meters (m.s.l.), December 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0300 G. M. T.



Chart XIV. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 500-mb. Pressure Surface, Average Temperature in °C. at 500 mb., and Resultant Winds at 5000 Meters (m.s.l.), December 1952.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on radiosonde observations at 0900 G. M. T.







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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

ANNUAL 1952

Volume 3 No. 13





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## S U B S C R I P T I O N   P R I C E

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

Volume 3 No. 13

ANNUAL 1952

### GENERAL SUMMARY OF WEATHER CONDITIONS

Severe drought over large areas of the Country during the summer and fall was the outstanding weather feature of 1952. The simultaneous occurrence of drought and record-breaking heat in the South and East during June and July greatly reduced crop yields, particularly in New England, the Carolinas, Georgia, and Tennessee where losses were estimated at many millions of dollars. The fall drought was almost Nation-wide and was particularly severe from the middle of September through the first decade of November. The weather during this period was ideal for harvesting but was unfavorable for pastures and seeding and growth of winter grains. Low humidity and the absence of rain created an extreme fire hazard, and widespread fires east of the Rocky Mountains burned over vast areas of grass and brush as well as large tracts of valuable timber. Smoke from these fires at times reduced visibility to less than a mile, and on one or two mornings in New Orleans, La. thick smog disrupted traffic.

Of major importance, also, was an early season heat wave during late March and early April in the north-central interior that rapidly melted a heavy snowcover over a frozen surface, resulting in damaging floods in the Minnesota and upper Mississippi Rivers and the most destructive flood in history along the Missouri River.

Other important features included the heavy winter snowfall in the western mountains, which assured abundant irrigation water, and adequate rainfall and favorable temperatures in the Main Corn Belt during the summer months, which contributed materially to the production of bumper crops of corn, soybeans, and hay. In Iowa, the yields of corn and soybeans per acre were the greatest of record.

**PRECIPITATION.**—The Nation-wide precipitation average for 1952 was the lowest since 1934. Central and northern Mississippi, some sections in the Pacific Northwest, and the major portion of the Great Plains received less than 75% of normal, and a few stations in western Texas and along the Canadian Border in the northern Great Plains reported less than 50%.

In the Pacific Northwest precipitation was normal or above in June and December only. Fortunately, rainfall came at timely intervals during the growing season, and the yields of most crops were average or above. In the fall and early winter, however, moisture deficiency delayed seeding, reduced the acreage of winter wheat, and resulted in insufficient stream flow for electric power.

In large areas of the lower Great Plains the year was one of prolonged drought. In Oklahoma the crop season was the driest on record. In Texas the year's drought was reflected in the lowering of the major reservoirs which declined from near one-half full in January to less than one quarter full in December. In the remainder of the Great Plains above-normal moisture in January or February, timely showers in late June and early July, and favorable temperatures during

the growing season, produced good crops. Drought-breaking rains occurred in Louisiana and extreme southern Mississippi about the middle of July and in most of the remaining eastern States during August.

Above-normal precipitation for 1952 was largely limited to California, Nevada, and Arizona, most of the middle and north Atlantic States, and scattered sections in the upper Mississippi Valley and Great Lakes Region.

**SNOWFALL.**—Heavy snows fell in the western mountains from January through March, particularly in the Sierra Nevadas where January depths at many stations were the greatest of record. In the Sierra Nevadas heavy snowfall and strong winds damaged power and communication lines, blocked roads and isolated some communities, and snowslides and avalanches in some localities demolished homes and other buildings killing several people. Rapid snowmelt caused damaging floods along the Milk River in Montana in late March and in Utah and Nevada in April and May.

East of the Rocky Mountains snowfall was generally about average in the more northern districts, but generally below normal in middle sections where the ground was free of snow much of the time.

**TEMPERATURE.**—East of the Continental Divide temperatures for the year averaged 3° to 4° above normal along the Canadian Border and north Atlantic Coast and 1° to 2° elsewhere, but west of the Divide yearly averages were near normal at all reporting stations. Nation-wide monthly averages were below normal only for March, October and November.

The winter of 1951-1952 was unusually mild over the eastern two-thirds of the Country, and freeze damage in the deep South was relatively light. In the northern Rocky Mountains and far West, however, the winter was colder than usual.

The spring was somewhat cooler than normal in the central and south-central interior, and generally above normal elsewhere.

The summer was characterized by abnormally warm weather, particularly in central and southern areas east of the Continental Divide.

In the far West the autumn was warmer than normal during September and October, but was unusually cold during November. East of the Divide temperatures averaged below normal for this season except in the Northeast.

**DESTRUCTIVE STORMS.**—During 1952 damage caused by high winds, tornadoes, and hail was above average of previous years. Of these three types of storms, high winds were the most destructive, causing damage of about \$75,000,000. More than one-half of this total occurred on September 1 when winds (which registered 90 m.p.h. before the anemometer was smashed) damaged buildings, installations, and 35 large planes at Carswell Air Base in Tarrant County, Tex.

Hail damage totaled nearly \$50,000,000, about four-fifths of which occurred between the Rocky Mountains and the Mississippi River. Oklahoma



## GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

YEAR 1952

reported the greatest damage, over \$7,000,000, followed by North Dakota with over \$6,000,000 and Nebraska and Kansas with over \$5,000,000 each. Probably the most destructive single hail-storm of the year occurred on June 24 in Huron, S. Dak. and surrounding localities where damage was estimated at \$3,500,000.

Tornadoes killed 230 persons and caused over \$35,000,000 damage. The greatest tornado disaster of the year occurred on March 21 and 22 when a series of these storms swept through parts of

Arkansas, Tennessee, Missouri, Kentucky, Alabama, and Mississippi, leaving over 200 persons dead, and 1,200 injured, and destroying property estimated at nearly \$15,000,000.

The year's only important hurricane damage occurred in South Carolina on August 30 and 31 and was estimated at slightly over two million dollars. Severe glaze in southeastern Missouri and adjacent sections of Arkansas, Kentucky, and Illinois during the first three days of January resulted in losses estimated in excess of \$1,500,000.

Details of each month's weather appear in the individual monthly issues of this periodical.



# AVERAGE TEMPERATURE

Table 1

YEAR 1952

Section	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alabama	59.5	51.9	54.2	61.7	71.9	82.5	82.8	80.2	72.7	58.4	52.8	46.5	64.1
Arizona	41.4	43.1	44.5	57.6	68.1	73.8	79.1	79.5	74.3	66.2	46.1	40.7	59.6
Arkansas	47.3	49.4	50.1	58.1	68.9	82.1	82.4	81.1	71.7	56.2	49.7	42.7	61.6
California	41.1	46.7	46.4	56.8	65.1	65.7	76.2	75.3	71.8	65.6	19.1	44.5	58.7
Colorado	25.5	26.7	29.7	44.6	53.8	66.3	68.2	67.1	60.3	49.4	30.0	24.3	45.5
Connecticut	30.5	30.8	35.8	50.6	55.4	68.4	74.4	70.0	63.3	49.8	42.5	33.3	50.4
Delaware	38.4	38.3	41.9	55.2	61.8	74.0	73.3	74.4	67.7	53.3	46.7	38.0	55.7
Florida	62.9	61.3	66.9	68.0	76.4	82.6	82.3	81.9	79.5	71.8	65.2	58.4	71.4
Georgia	54.5	52.1	56.3	62.7	72.8	82.9	82.4	79.8	73.5	61.7	55.2	46.9	65.1
Idaho	21.1	23.4	30.1	46.6	54.8	60.2	66.7	66.9	60.6	51.5	29.9	27.9	45.0
Illinois	31.6	36.4	38.9	53.3	62.6	77.8	78.1	73.7	66.8	50.7	44.0	34.2	54.0
Indiana	33.3	35.6	39.7	52.1	61.2	76.2	77.3	72.8	65.7	50.1	43.8	34.8	53.6
Iowa	20.4	31.3	31.8	50.0	59.6	74.2	74.7	70.0	64.9	47.5	38.4	26.2	49.1
Kansas	34.7	39.4	38.6	52.3	64.2	81.7	80.4	79.6	71.0	55.1	41.3	31.4	55.8
Kentucky	41.7	41.4	45.6	55.8	65.7	79.1	79.4	76.3	67.9	52.1	46.2	39.5	57.6
Louisiana	59.6	56.8	58.1	63.7	73.6	82.1	82.5	82.9	75.8	61.2	56.6	51.4	67.0
Maine	19.4	21.9	30.0	42.5	50.9	63.8	71.9	67.2	58.7	45.2	36.0	26.5	44.5
Maryland	38.4	38.5	41.7	54.8	61.9	74.3	77.9	74.1	67.9	53.3	46.7	37.3	55.5
Massachusetts	30.2	30.0	35.1	48.8	54.9	67.7	74.4	69.6	63.0	50.3	42.2	33.0	49.9
Michigan	23.4	25.0	28.8	45.9	53.6	66.5	70.9	66.8	60.8	43.9	38.5	30.0	46.2
Minnesota	7.6	20.6	22.3	46.7	55.5	66.7	69.7	66.4	60.3	42.3	32.5	21.1	42.6
Mississippi	54.9	53.7	55.0	61.7	72.1	82.6	82.3	81.9	73.7	58.3	53.3	47.6	64.8
Missouri	36.0	40.2	42.0	54.3	65.1	80.8	79.7	75.7	68.2	53.3	44.9	35.8	56.3
Montana	13.4	23.3	24.4	47.6	53.5	60.9	65.0	65.5	59.2	46.6	29.6	25.1	42.8
Nebraska	26.0	33.0	31.4	49.2	59.5	75.7	75.3	73.9	67.0	50.5	35.0	26.3	50.3
Nevada	27.0	33.0	34.3	50.2	58.5	62.6	72.6	72.3	64.9	57.5	35.8	33.4	50.2
New Hampshire	22.7	23.7	30.7	45.0	51.4	65.0	71.2	66.7	60.0	45.3	37.2	27.4	45.5
New Jersey	35.1	35.2	39.3	53.2	59.2	71.8	77.0	72.7	66.3	52.1	45.1	36.5	53.6
New Mexico	38.7	37.8	40.4	52.3	61.6	72.5	73.1	74.4	66.0	56.2	38.7	33.4	53.8
New York	25.8	26.7	31.8	47.9	52.8	66.3	72.7	68.0	61.8	46.0	40.7	30.0	47.5
North Carolina	47.2	45.2	49.6	59.3	68.4	79.2	79.1	76.2	70.1	56.6	50.6	41.9	60.3
North Dakota	3.0	17.4	18.1	48.5	55.3	64.9	67.8	67.3	60.7	43.2	30.3	19.3	41.3
Ohio	34.5	34.4	38.9	51.4	59.3	74.2	76.3	71.9	64.9	49.2	43.6	31.1	52.9
Oklahoma	45.3	46.6	48.2	57.5	68.9	83.0	82.7	85.1	74.4	59.5	48.1	39.5	61.6
Oregon	28.9	34.2	37.8	49.3	54.4	58.2	67.3	65.8	61.9	54.7	35.3	34.0	48.5
Pennsylvania	32.3	32.9	36.6	50.5	57.0	70.2	74.6	70.4	63.5	48.3	42.9	33.0	51.0
Rhode Island	33.2	32.6	37.1	19.1	56.3	67.8	75.5	71.0	64.3	51.7	44.1	35.0	51.5
South Carolina	52.3	49.0	54.2	61.6	72.1	82.1	81.3	78.7	72.6	59.7	54.0	44.8	63.5
South Dakota	13.3	24.6	23.3	48.6	57.1	69.9	72.8	71.1	65.3	46.9	33.1	24.6	45.9
Tennessee	45.6	45.3	48.5	57.6	67.7	80.9	80.4	77.8	68.7	53.4	47.4	41.1	59.5
Texas	54.3	53.7	55.8	63.1	71.9	81.9	82.3	85.9	76.0	63.5	54.2	47.0	65.8
Utah	23.1	26.1	31.4	48.3	57.9	64.1	70.9	71.0	63.9	54.5	32.9	28.2	47.7
Vermont	20.3	22.4	29.5	44.6	50.1	63.9	70.4	66.3	59.3	44.3	37.2	25.7	44.5
Virginia	41.4	40.7	44.4	56.0	63.9	76.0	77.8	74.1	67.0	54.0	47.5	38.1	56.7
Washington	27.2	35.0	39.8	49.5	55.5	59.1	66.9	65.9	61.9	51.1	36.1	34.8	48.8
West Virginia	38.5	37.8	41.5	52.6	61.4	73.3	75.2	71.8	64.0	49.7	44.1	35.8	53.8
Wisconsin	16.1	23.6	26.4	47.1	55.2	66.9	71.1	66.5	60.2	42.7	35.7	25.1	44.7
Wyoming	19.5	22.6	24.9	43.4	51.6	62.0	65.5	65.3	59.0	47.1	26.0	24.0	42.6
Alaska	-5.4	2.5	9.5	20.7	34.1	48.6	53.5	50.5	40.7	31.0	21.5	14.6	26.0
Hawaii	68.5	69.0	68.7	69.2	69.6	72.0	73.2	73.8	73.6	72.8	71.3	69.4	70.9
Puerto Rico	72.5	73.2	74.2	76.1	78.1	79.2	78.3	79.3	78.2	78.5	76.1	72.9	76.4

# DEPARTURES FROM NORMAL TEMPERATURE

Table 2

YEAR 1952

Section	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alabama	+6.7	+2.9	-1.7	-1.9	+0.5	+4.1	+2.5	+0.5	-2.8	-6.5	-1.4	-1.2	+0.1
Arizona	+9	-1.6	-5.9	-3	+2.3	-6	-1.1	+1.2	+1.6	+4.4	-3.7	-2.2	-4
Arkansas	+6.1	+4.7	-2.3	-3.5	-2	+5.0	+1.9	+1.1	-2.4	-6.3	-1.5	-1	+2
California	-3.1	-6	-5.0	+0.2	-4.2	+3	+5	+2.3	+4.4	-2.9	-1.1	-1.7	+2
Colorado	+2.2	-6	-4.7	+7	+1.2	+4.8	+1.2	+1.9	+1.9	+4.9	-1.7	-1.7	+2
Connecticut	+3.5	+4.0	0	+4.2	-2.1	+2.3	+4.3	+9	+7	-2.3	+1.6	+3.2	+1.7
Delaware	+3.3	+3.6	-1.7	+2.5	-1.4	+2.4	+2.2	0	-8	-4.2	0	+1.2	+6
Florida	+3.7	+7	+1.6	-1.9	+8	+2.6	+1.0	+5	+1	-1.1	+2	-1.6	+5
Georgia	+6.2	+2.3	-6	-1.3	+7	+4.2	+2.1	0	-2.2	-3.7	0	-1.5	+5
Idaho	-2.4	-4.6	-5.6	+1.4	+1.3	-1	-1.7	+3	+3.3	+4.1	-5.4	+1.6	-7
Illinois	+3.9	+6.5	-2.1	+8	-1	+5.7	+1.7	-9	-9	-5.2	+1.8	+3.0	+1.2
Indiana	+4.6	+5.0	-8	+9	-8	+5.0	+1.7	-9	-1.6	-5.1	+1.6	+3.1	+1.1
Iowa	+7	+8.7	-3.9	+1.1	-8	+4.7	-2	-2.6	+5	-5.0	+1.0	+1.8	+5
Kansas	+4.4	+5.4	-5.5	-2.2	+4	+7.9	+8	+1.3	+1.0	-2.6	-2.5	-1.5	+6
Kentucky	+5.6	+4.1	-3	-4	+3	+5.1	+2.4	+5	-2.3	-6.3	-1	+1.7	+9
Louisiana	+8.5	+3.2	-1.8	-3.2	+2	+2.1	+4	+1.1	-2.1	-6.9	-1.7	-5	-1
Maine	+2.3	+3.7	+9	+1.6	-1.6	+2.2	+5.0	+2.0	+9	-2.7	+9	+4.4	+1.6
Maryland	+4.9	+4.9	-1.1	+2.5	-9	+3.4	+2.7	+7	-5	-3.0	+1.4	+2.0	+1.4
Massachusetts	+3.7	+3.6	-1	+3.4	-1.6	+2.4	+3.8	+9	+9	-1.5	+1.2	+2.9	+1.6
Michigan	+3.3	+4.9	-8	+3.4	-3	+2.6	+1.9	-3	+8	-4.9	+2.5	+5.3	+1.5
Minnesota	-1.2	+8.3	-3.6	+4.4	+6	+2.3	-1	-8	+1.8	-3.7	+3.1	+5.8	+1.4
Mississippi	+7.4	+4.0	-1.9	-2.9	+2	+3.6	+1.7	+1.1	-2.1	-7.2	-1.7	-7	+1
Missouri	+5.2	+6.5	-2.5	-1.1	+5	+7.5	+2.0	-8	-1.1	-4.4	+3	+1.9	+1.2
Montana	-5.1	+2.3	-6.4	+4.2	+6	+4	-3.4	-5	+3.2	+1.1	-2.3	+2.1	-3
Nebraska	+2.9	+6.6	-5.1	-1	+2	+6.4	+3	+4	+2.6	-1.6	-2.4	-9	+8
Nevada	-3.7	-2.1	-7.2	+1.0	+1.5	-2.6	-9	+8	+2.1	+5.7	-4.8	+1.0	-8
New Hampshire	+3.5	+4.1	+1.7	+3.0	-2.6	+1.9	+3.1	+1.1	+1.6	-2.2	+1.7	+4.2	+1.7
New Jersey	+4.0	+4.3	-2	+3.3	-1.4	+2.6	+3.0	+5	+4	-2.8	+1.1	+7	+1.4
New Mexico	+4.8	-4	-3.9	0	+9	+2.8	-2	+2.7	+7	+1.4	-4.2	-2.0	+2
New York	+3.6	+2.0	-4	+3.6	-3.2	+1.2	+2.8	+2	+6	-4.2	+2.5	+3.2	+1.0
North Carolina	+2.3	+2.3	-4	+1.2	+1.5	+5.0	+2.2	+4	-8	-3.6	+6	-7	+1.1
North Dakota	-3.9	+6.9	-6.6	+7.2	+1.4	+1.8	-1.8	+3	+3.6	-8	+2.9	+5.3	+1.4
Ohio	+5.3	+4.3	-1	+1.5	-8	+4.4	+2.6	+2	-7	-4.6	+2.1	+3.4	+1.5
Oklahoma	+7.3	+3.9	-2.6	-3.0	+7	+5.4	+4	+3.2	+2	-3.6	-1.5	-1.1	+8
Oregon	-2.3	-1.6	-4.0	+1.4	+4	-1.6	+4	+2	+3.2	+4.4	-4.9	-3	-4
Pennsylvania	+3.7	+4.3	1.1	+1.9	-2.6	+2.1	+2.4	+1	-5	-4.4	+1.6	+2.1	+8
Rhode Island	+3.5	+3.5	+5	+3.7	+4	+3.1	+5.1	+1.7	+1.7	+1.0	+2.0	+1.0	+2.0
South Carolina	+6.0	+1.1	-7	+8	+1	+4.2	-1	-2	-2.0	+4.5	+1	-1.8	+3
South Dakota	-3.8	+5.3	-8.0	+2.6	+7	+3.8	-3	0	+3.7	-2.0	0	+2.6	+4
Tennessee	+6.2	+4.0	-1.0	-1.1	+8	+6.0	+2.6	+1.0	-2.6	-6.4	-1.0	+3	+7
Texas	+7.3	+3.2	-1.8	-2.1	-6	+2.3	-1	+3.7	-3	-3.3	-1.5	-1.0	+5
Utah	-1.7	-4.0	-6.8	+1.3	+2.2	-1	-1.0	+1.1	+3.1	+5.1	-4.2	+1.1	-3
Vermont	+2.4	+1.3	+7	+3.0	-3.9	+7	+2.6	+9	+1.2	-2.8	+2.3	+3.5	+1.2
Virginia	+4.7	+3.4	-1.2	+1.4	-2	+4.1	+2.5	+1	-1.4	-3.4	+7	+2	+9
Washington	-3.6	1	-1.7	+9	+2	-1.7	+2	-1	+3.0	+4.0	-3.8	+1.2	+1
West Virginia	+5.1	+1.2	-9	+7	-1	+3.5	+2.1	0	-2.2	-5.1	+9	+1.2	+8
Wisconsin	+2.1	+8.7	-2.1	+1.2	+0	+2.1	+1.0	-9	+3	-5.1	+2.7	+5.0	+1.5
Wyoming	+9	+1	-5.0	+2.5	+1.6	+3.3	-9	+7	+3.8	+2.7	-5.3	+1.7	+5
Alaska	-6.9	-1.4	-9	-2.4	-4.6	-1.3	-5	-3	-1.7	+2.4	+9.9	+3.5	-4
Hawaii	5	-3	3	-1.2	-2.3	-1.1	-1.2	-1.0	-1.2	-7	+1	-4	-9
Puerto Rico	-1	+6	+9	+1	+9	+7	-3	+4	-3	+6	-5	-1.4	+1



# DEPARTURES FROM NORMAL ANNUAL TEMPERATURE

Table 3

(For past years)

Section	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952
Alabama	+0.9	+1.0	+2.0	+0.7	+1.0	+1.1	+0.5	+1.8	+1.2	-1.5	+0.8	-0.3	+0.5	+1.0	+1.2	+1.4	-0.2	+0.7	+1.2	+0.1	+0.6	+0.1
Arizona	-2	.9	-4	+2.4	-5	+9	-4	-3	+1.1	-1.5	-6	-6	+9	-4	-5	+3	+3	-4	-9	+1.3	-2	-4
Arkansas	+1.1	+6	+1.8	+1.4	.0	+6	-3	+2.2	+1.3	-2.1	+5	-4	+2	+3	-6	+1.2	-6	-1.0	-1	-1.2	-9	+2
California	+4	-1.1	-1.4	+1.5	-1.2	+6	-8	-7	+2	+7	-4	-6	+4	-1.2	-5	-1.0	-1	-1.6	-1.3	+6	-2	-6
Colorado	+1.0	-2	+1.6	+4.3	+1.4	+1.7	+7	+1.4	+1.5	+1.3	+6	-2	+1.3	-3	-1	+1.1	+2	-6	+2	+9	-8	+2
Connecticut	+2.6	+1.6	-1.6	-2	-3	+2	+1.3	+1.5	+3	-3	+4	-7	-7	+1	+2	+2.8	-7	-4	+2.8	+1	+1.4	+1.7
Delaware	+2.2	+1.6	+1.3	-3	-5	+4	+4	+1.2	-2.3	+7	+4	+1	+1	+1	+2	+1.1	-4	-2	+2.2	-2	+6	+6
Florida	.0	+1.1	+1.2	+1	.0	+1	-1	+3	+7	-1.7	.0	-3	-3	+4	+1.0	+1.5	+5	+1.8	+1.7	+7	+6	+5
Georgia	+1.0	+1.2	+1.7	+1	+4	+5	.0	+1.1	+1.0	-1.7	+5	-4	-1	+1	+6	+1.0	-8	+6	+1.2	-1	+3	+5
Idaho	+3	-1.5	-5	+4.3	-6	+2	-8	+9	+1.4	+2.3	+1.0	-1.0	-1	-8	-3	.0	+6	-1.2	-8	-2	-1.1	-7
Illinois	+3.5	+7	+2.3	+1.8	-1	+5	-8	+2.7	+1.9	-8	+2.0	+3	-4	+9	-7	+2.3	-2	+1	+1.2	-1.5	-1.5	+1.2
Indiana	+2.9	+7	+2.1	+1.2	-1	+3	-7	+2.3	+1.7	-1	+1.7	+3	-4	+1.1	-5	+2.1	-7	+2	+1.4	-1.4	-1.2	+1.1
Iowa	+5.0	.0	+1.0	+3.3	-4	+4	-7	+3.0	+2.9	-1	+2.9	+7	-3	+1.1	-2	+2.8	-7	+4	+6	-2.6	-3.0	+5
Kansas	+2.4	+3	+2.8	+3.5	+9	+1.3	-4	+2.9	+2.8	-4	+1.2	.0	+4	+1	-4	+2.8	+2	-4	-1.1	-2	+2	+6
Kentucky	+2.3	+1.0	+1.7	+9	+1	+7	-4	+1.9	+1.2	-1.9	+9	-1	-1	+7	.0	+1.5	-1.0	+1	+1.2	-1.0	-5	+9
Louisiana	+2	+5	+2.2	+8	+8	.0	-1	+1.0	+1.0	-1.8	+2	-8	-2	+4	+4	+8	-6	+1	+7	+6	+6	-1
Maine	+3.1	+2.2	+7	-2	+2	+5	+3.0	+2.2	-2	-6	+1.2	+1.3	-7	+1.0	+7	+1.1	+1.3	+3	+2.7	+8	+1.6	+1.6
Maryland	+1.9	+1.0	+8	-2	+5	+2	.0	+1.3	+1.3	-1.8	+9	+7	+3	+4	+6	+1.7	+2	+5	+2.7	+6	+1.0	+1.4
Massachusetts	+1.9	+1.1	+6	-4	-4	+1	+1.3	+1.4	+1	-1.7	+8	+4	-8	+3	+5	+1.2	+7	+1	+3.1	+4	+1.3	+1.6
Michigan	+3.8	+9	+1.2	+2	-5	-7	+1	+1.8	+9	-1.0	+1.8	+4	-1.4	+1.0	-4	+7	+2	+4	+2.1	-1.4	-7	+1.5
Minnesota	+5.2	-4	+6	+1.4	-5	-2.0	-1.3	+1.8	+1.9	-1	+2.5	+9	-9	+1.5	-1.0	+7	-1	+2	+5	-4.0	-2.6	+1.4
Mississippi	+7	+5	+2.1	+9	+5	+3	+1	+1.6	+9	-2.3	+5	-5	+3	+6	+4	+9	-8	-1	+1.1	+1	+5	+1
Missouri	+2.8	+4	+2.1	+2.2	-2	+1.1	-7	+3.2	+2.2	-1.2	+2.0	+3	-1	+7	-5	+2.6	+2	.0	+5.5	-6	-1.4	+1.2
Montana	+2.5	-4	+1.0	+3.9	-5	-3	-1.1	+1.2	+2.3	+1.7	+1.8	-1	-1	+4	-2	+8	+3	-6	-1.0	-2.9	-3.7	-3
Nebraska	+3.4	-3	+2.6	+3.9	+7	+4	-4	+2.8	+3.1	+6	+1.7	+3	+1.0	-2	-3	+2.4	+3	+3	-2	-1.5	-2.3	+8
Nevada	+1.8	+1	+6	+4.6	+1.0	+2.4	+8	+9	+1.9	+2.7	+6	+1.0	-2.0	-1.0	+5	+1.3	+1.5	-6	-8	+7	-5.6	-8
New Hampshire	+1.5	+6	-5	-1.4	-1.4	-8	+7	+1.0	-1.1	-1.9	+1	+6	-1.1	.0	+5	+9	+4	-7	+2.6	-6	+9	+1.7
New Jersey	+2.4	+1.4	+9	-4	-4	+3	+1.0	+1.3	+1.0	-1	+1.0	+6	+1	+5	+6	+1.9	+5	+3	+3.1	+4	+1.2	+1.4
New Mexico	-5	-1.0	+3	+2.4	.0	.0	-2	-1	.0	+2	-7	+1	+1.0	-9	+1	+9	.0	+4	+5	+1.8	-5	+2
New York	+2.5	+1.3	+1.3	-4	-6	+2	+1.1	+1.6	+5	-1.8	+1.2	-8	-8	+4	+3	+1.6	+4	+2	+2.6	-3	+2	+1.0
North Carolina	+1.0	+1.2	+1.8	+3	+1	+2	+1	+1.1	+1.2	-1.5	+6	+1	+1	.0	+7	+5	-6	+8	+2.2	+5	+5	+1.1
North Dakota	+5.3	+4	+1.5	+3.8	-2	-8	-5	+2.3	+2.3	+1.4	+2.6	+1.3	+2	+1.4	-6	+1.2	+5	+4	+2	-4.3	-3.7	+1.4
Ohio	+3.0	+1.4	+2.0	+1.0	+1	+4	-1	+2.4	+1.9	-1.2	+1.8	+7	-3	+9	-2	+1.9	-2	+5	+2.7	-7	.0	+1.5
Oklahoma	+1.6	+1	+2.5	+2.5	+3	+1.3	-3	+2.3	+2.2	-1.1	+5	-3	+5	+4	-6	+2.0	-1	-9	-9	-9	-6	+8
Oregon	+1.1	-2	+1.8	+3.1	-4	+5	-3	+5	+1.1	+1.8	+1.4	+2	-2	-2	-3	-1.0	+2	-1.7	-1.0	-6	-5	+4
Pennsylvania	+2.6	+1.4	+1.5	+4	.0	+2	+5	+1.6	+1.5	-1.6	+1.1	+3	-7	-2	-5	+9	-6	-3	+2.0	-9	+1	+8
Rhode Island	+2.5	+1.3	+7	-2	+1	+4	+1.8	+1.4	+3	-1.6	+6	+5	-4	+5	+2	+1.0	+3	-3	+3.0	+5	+2.0	+2.0
South Carolina	+8	+1.5	+1.8	+2	+2	+2	-2	+1.0	+1.2	-1.6	+2	+2	-2	-1	+9	+1.0	-7	.0	+1.1	-2	-1	+3
South Dakota	+4.5	-3	+2.5	+1.1	+9	-4	-9	+2.4	+3.0	+6	+2.4	+6	+4	-1	-6	+1.8	+2	+2	-1	-3.4	-3.5	+4
Tennessee	+2.1	+1.5	+2.2	+1.1	+8	+9	+2	+2.0	+1.4	-1.6	+1.4	+2	+3	+8	+3	+1.7	-5	+1	+1.1	-6	.0	+7
Texas	+1	-6	+2.1	+4.8	+3	-7	-4	+1.1	+8	-1.5	-5	-9	-3	-2	+1	+7	-8	-3	-1.3	-2	+1.0	+5
Utah	+2	+1.5	-2	+1.2	+7	+1.1	+4	+6	+9	+2.2	-2	+7	+1.5	-1.3	-4	+7	-3	-8	-1.1	+6	-3	-3
Vermont	+2.0	+1.2	+9	-6	-1.9	+1	+5	+1.4	-5	-1.3	+6	+1.0	-1.4	-1	-5	+8	+5	.0	+2.2	+1	+8	+2
Virginia	+1.9	+1.6	+1.7	+3	-5	+1	-2	+1.1	+1.3	-1.6	+9	+5	+3	+1	+5	+1.1	-6	+1	+1.7	-2	+4	+9
Washington	-4	-1.3	-1.6	+2.3	-6	.0	-7	+3	+9	+2.0	+2.1	+6	-3	+2	-2	-5	+4	-2.5	-1.4	-2.0	-1.0	-1
West Virginia	+1.7	+1.0	+1.4	+5	.0	+3	-1	+1.5	+1.4	-1.6	+4	.0	-5	.0	.0	+1.4	-4	+1	+2.2	-3	+1	+8
Wisconsin	+7	-1	+9	+1.2	-5	-1.3	-7	+1.8	+1.7	-8	-2.4	+5	-9	+1.7	-6	+1.9	+4	+4	+1.8	-2.3	-2.3	+1.5
Wyoming	+1.3	-1.4	+1.3	+3.9	+3	+5	-5	+1.1	+1.6	+1.7	+1.7	-2	+1.6	-1.5	-2	+2.1	+8	+4	+7	-2	-1.3	+5

## AVERAGE PRECIPITATION

Table 4

YEAR 1952

Section	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alabama	3.93	4.15	6.75	2.88	5.38	2.27	2.07	6.64	3.27	1.39	2.55	5.99	47.32
Arizona	1.64	.33	2.26	1.70	.06	.62	1.62	1.82	1.16	T	1.95	.94	14.10
Arkansas	3.86	3.63	5.59	5.88	4.14	.49	2.51	3.53	2.04	.78	7.01	3.66	43.12
California	7.66	2.52	4.98	1.39	.37	.60	.31	.03	.36	.09	2.29	6.90	27.50
Colorado	1.11	.60	1.33	1.73	1.75	.61	1.35	2.19	.89	.05	1.07	.57	13.30
Connecticut	5.17	2.59	3.88	6.38	4.90	5.99	2.83	7.98	3.41	1.07	3.32	3.75	50.37
Delaware	5.28	2.53	5.38	6.02	4.82	2.91	5.33	6.10	2.69	.76	5.53	3.62	51.02
Florida	1.15	5.63	3.85	2.14	3.76	3.26	5.43	7.50	6.42	6.59	1.11	1.37	48.21
Georgia	2.65	4.90	7.62	2.74	4.79	2.72	2.87	6.39	3.43	1.29	2.01	4.15	45.56
Idaho	2.16	1.71	1.41	.76	1.42	2.04	.55	.30	.27	.07	.69	2.08	13.46
Illinois	1.76	1.67	4.38	3.72	3.52	4.64	3.44	2.97	1.95	.68	2.95	2.12	33.80
Indiana	3.44	2.46	4.59	3.82	4.09	4.84	2.49	2.92	3.42	1.10	2.75	2.58	38.50
Iowa	1.34	.66	3.30	1.87	3.79	5.40	3.84	4.78	.88	.02	2.73	1.19	29.80
Kansas	3.33	.62	2.35	3.40	2.49	.64	2.27	3.17	.61	.02	1.71	.84	18.65
Kentucky	5.36	2.64	7.25	2.72	3.85	2.63	2.59	3.45	2.42	1.45	3.21	3.87	41.44
Louisiana	2.91	6.69	3.58	6.75	5.38	1.45	6.25	2.99	2.37	.04	4.23	5.61	48.75
Maine	4.22	4.33	2.02	2.68	3.87	4.34	.97	2.64	3.03	3.21	2.04	4.82	38.17
Maryland	4.74	2.10	4.92	6.86	5.16	3.19	3.69	5.72	4.27	1.18	6.21	3.31	51.35
Massachusetts	4.46	3.93	3.52	4.08	3.88	3.88	1.37	6.32	2.70	1.39	2.14	3.91	41.58
Michigan	2.50	.98	2.26	2.40	2.95	2.63	5.48	3.36	1.69	.70	3.05	1.88	29.85
Minnesota	1.09	.64	1.50	.89	1.57	5.06	5.37	4.24	.57	.15	1.07	.32	22.47
Mississippi	3.76	4.59	4.52	4.19	5.18	1.16	3.24	2.92	2.36	.21	3.75	5.30	41.18
Missouri	1.35	2.25	3.98	4.19	3.03	2.27	3.48	5.12	1.67	.50	3.44	1.85	33.13
Montana	.65	.80	.68	.32	2.14	2.04	1.41	.98	.53	.16	.52	.39	10.62
Nebraska	.44	.90	1.57	2.31	3.87	2.48	2.73	3.45	.64	.14	1.09	.72	20.34
Nevada	1.67	.57	1.92	1.20	.31	.66	.85	.18	.49	.01	.48	.88	9.22
New Hampshire	3.99	3.45	3.04	3.98	4.27	4.91	2.45	3.16	3.20	1.79	2.08	5.65	41.97
New Jersey	5.15	2.25	5.42	6.67	5.75	3.86	4.85	6.98	3.83	.86	4.85	4.23	54.70
New Mexico	.61	.38	.68	1.17	.72	1.16	2.01	2.16	.95	T	.92	1.43	11.19
New York	3.11	2.37	2.96	3.53	4.45	2.92	3.80	3.41	3.35	2.09	2.71	3.84	38.54
North Carolina	3.63	4.48	7.05	3.03	3.41	2.85	4.26	8.41	3.40	1.28	4.34	3.27	49.41
North Dakota	.70	.59	.48	.13	.68	3.21	2.79	2.31	.62	.10	.47	.17	12.25
Ohio	4.95	2.24	3.84	3.80	3.45	2.80	3.16	2.72	2.82	.99	1.84	2.65	35.26
Oklahoma	.99	1.52	2.57	4.08	3.69	1.29	2.41	2.38	.60	.11	2.81	1.17	23.62
Oregon	4.02	3.26	2.89	1.12	1.28	2.70	.15	.21	.67	.33	1.08	5.23	22.94
Pennsylvania	4.59	2.23	4.42	5.71	5.77	2.23	4.48	4.08	3.95	1.33	4.61	3.41	46.81
Rhode Island	4.76	4.05	4.73	3.72	3.64	2.41	.40	8.88	1.78	1.64	2.26	3.44	41.71
South Carolina	2.50	4.48	7.38	3.28	3.63	3.46	3.32	8.77	3.44	1.02	2.06	3.26	46.60
South Dakota	.75	.99	.89	.39	2.51	3.52	1.63	2.03	.34	.03	.71	.24	14.03
Tennessee	5.72	3.40	6.83	2.66	3.13	1.96	2.64	4.49	2.85	1.30	3.63	3.57	42.18
Texas	.81	1.65	1.77	3.65	4.23	2.13	2.12	3.43	2.12	1.33	3.27	22.94	
Utah	1.76	.80	2.33	1.17	.78	1.10	.80	1.21	.51	T	.75	.98	12.19
Vermont	2.76	2.92	2.25	3.43	4.10	6.33	2.67	2.70	3.34	2.60	1.70	4.21	39.01
Virginia	4.72	2.85	4.97	4.89	3.93	2.72	3.31	5.99	3.22	1.47	5.24	2.97	46.28
Washington	3.83	2.47	2.36	1.40	1.21	2.05	.30	.61	.49	.68	1.05	5.02	21.47
West Virginia	5.54	1.85	4.38	4.23	5.24	3.76	3.00	5.04	2.38	1.07	2.72	2.81	42.02
Wisconsin	1.77	.64	2.29	1.61	3.08	4.80	5.92	4.55	.73	.17	1.22	1.22	28.75
Wyoming	.57	.80	2.68	1.85	2.07	1.39	2.12	2.85	.31	.15	1.17	1.17	11.17
Alaska	1.63	1.17	1.15	1.15	1.13	1.40	2.52	4.69	2.52	3.58	2.91	1.76	23.71
Hawaii	9.48	4.85	10.10	4.52	4.80	5.07	5.45	3.25	3.10	8.03	7.91	4.45	71.01
Puerto Rico	4.57	2.58	2.30	7.84	7.24	5.52	9.47	7.78	12.59	6.72	4.00	1.98	72.59



# PERCENT OF NORMAL PRECIPITATION

Table 5

YEAR 1952

Section	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alabama	79	79	110	64	138	53	39	143	97	55	75	121	89
Arizona	166	26	231	262	19	177	97	86	83	0	275	72	112
Arkansas	87	101	117	119	81	12	67	98	61	24	184	87	88
California	192	65	171	90	46	194	282	18	90	8	112	188	132
Colorado	119	59	101	100	100	42	67	115	64	4	129	61	80
Connecticut	135	75	96	172	128	143	72	192	89	31	86	98	111
Delaware	147	81	140	171	131	77	113	127	78	25	185	106	116
Florida	43	185	114	71	97	49	73	106	94	155	50	49	91
Georgia	65	106	151	72	140	61	49	121	90	48	75	100	91
Idaho	107	99	84	55	89	155	90	52	27	5	35	106	78
Illinois	76	87	137	105	85	115	107	88	54	25	113	99	92
Indiana	115	103	123	106	100	122	75	88	104	40	91	95	98
Iowa	133	61	195	72	96	119	107	127	22	1	159	109	95
Kansas	50	63	167	133	66	212	77	102	21	1	123	100	70
Kentucky	117	75	151	69	97	63	62	93	83	55	91	101	91
Louisiana	60	149	71	143	126	32	106	62	60	1	103	105	88
Maine	126	147	59	86	119	125	29	82	85	90	57	145	95
Maryland	141	72	138	97	141	139	80	86	129	125	40	225	104
Massachusetts	121	116	91	115	113	110	39	172	74	42	58	109	97
Michigan	139	60	111	100	89	77	200	115	51	26	121	97	97
Minnesota	147	85	125	43	50	124	162	129	20	8	91	42	89
Mississippi	72	92	75	86	121	28	64	71	75	8	98	100	77
Missouri	58	107	122	92	63	47	99	135	42	17	126	85	81
Montana	89	131	79	28	108	73	101	98	41	16	67	52	74
Nebraska	80	130	138	97	113	66	88	128	30	10	140	107	91
Nevada	158	56	211	154	40	127	218	36	40	117	2	75	93
New Hampshire	133	128	93	128	130	134	66	90	86	58	62	182	106
New Jersey	142	66	116	185	149	101	102	149	104	25	142	118	120
New Mexico	105	55	89	136	58	98	89	91	51	0	151	57	78
New York	107	89	96	117	126	82	96	93	97	65	87	128	98
North Carolina	98	113	166	86	85	62	71	152	84	39	154	86	100
North Dakota	146	126	62	9	30	91	113	112	41	10	77	35	72
Ohio	167	93	111	92	71	92	96	92	61	40	67	97	93
Oklahoma	64	94	113	116	77	32	86	82	19	4	138	69	71
Oregon	104	98	100	54	73	189	34	48	56	15	28	123	83
Pennsylvania	143	80	125	164	143	54	103	100	116	42	153	110	111
Rhode Island	120	116	117	99	106	81	14	236	54	49	60	90	98
South Carolina	73	111	183	101	104	74	56	153	83	36	88	92	98
South Dakota	136	180	80	19	88	98	67	96	22	2	108	47	73
Tennessee	113	76	127	62	77	46	59	113	89	46	98	78	84
Texas	51	106	100	138	107	41	85	24	77	1	178	106	83
Utah	150	63	171	94	72	157	83	108	49	0	81	89	92
Vermont	100	117	77	117	123	169	70	77	90	81	53	151	102
Virginia	143	95	137	149	103	66	71	133	98	50	202	96	110
Washington	88	70	78	65	64	127	46	86	30	24	22	101	67
West Virginia	151	59	112	120	130	84	65	124	79	39	95	86	97
Wisconsin	143	53	141	65	88	115	173	132	21	7	102	98	95
Wyoming	68	103	99	54	135	76	85	115	26	13	56	74	78
Alaska	92	90	85	124	93	92	113	86	87	121	139	97	102
Hawaii	131	73	116	60	85	118	102	53	63	144	121	57	93
Puerto Rico	119	81	67	188	94	93	153	108	165	88	57	46	105

# PERCENT OF ANNUAL PRECIPITATION

Table 6

(For past years)

Section	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952
Alabama	80	119	90	103	92	114	109	91	111	101	86	100	89	112	106	124	114	125	106	98	100	89
Arizona	142	98	86	76	112	103	94	92	93	125	153	69	90	99	82	100	69	77	97	54	115	112
Arkansas	97	105	101	88	118	72	114	100	104	93	96	103	72	114	139	121	84	115	117	122	109	88
California	102	85	84	75	92	84	121	125	69	150	151	100	100	100	114	73	57	88	70	124	111	132
Colorado	85	86	92	66	96	97	88	117	65	102	136	113	86	100	102	102	110	93	102	74	99	80
Connecticut	90	107	99	116	79	117	120	133	94	104	81	115	85	98	112	84	112	103	85	97	114	111
Delaware	93	112	119	124	124	115	115	111	104	99	77	102	88	101	125	90	95	131	92	92	102	116
Florida	81	100	104	99	98	108	110	81	102	98	110	100	90	100	104	103	137	118	102	91	90	91
Georgia	75	116	83	97	89	118	105	84	98	94	85	106	94	108	108	101	119	127	96	89	91	91
Idaho	83	108	103	89	68	91	110	108	76	121	119	111	92	89	121	114	101	118	86	115	112	78
Illinois	103	99	95	90	114	82	100	110	97	78	108	112	95	92	125	109	101	100	112	117	119	92
Indiana	98	109	104	76	100	86	117	105	99	83	105	95	86	127	92	102	105	115	138	109	98	93
Iowa	111	102	79	85	104	82	87	114	79	97	116	103	98	117	109	109	111	89	89	93	135	95
Kansas	96	88	82	74	106	68	77	101	75	95	137	123	91	139	112	105	102	109	120	101	156	70
Kentucky	93	109	112	82	127	84	110	102	105	86	74	110	83	89	113	101	92	111	114	139	119	91
Louisiana	94	111	97	105	101	81	104	89	91	132	107	101	92	109	109	130	112	100	109	101	87	88
Maine	100	99	102	99	95	123	105	107	89	100	76	100	106	95	115	92	91	93	89	107	126	95
Maryland	92	112	117	107	112	105	124	96	103	104	78	115	81	101	120	89	92	132	99	102	102	122
Massachusetts	101	107	115	105	92	119	114	129	88	102	76	110	90	97	117	95	95	106	81	93	112	97
Michigan	98	109	99	84	94	89	102	103	99	107	106	115	105	94	116	90	108	92	105	114	122	97
Minnesota	88	85	81	80	101	72	102	112	86	100	115	114	107	117	108	111	100	89	106	103	123	89
Mississippi	98	127	94	100	97	83	104	92	101	114	87	91	78	114	111	123	109	123	114	112	104	77
Missouri	100	94	93	87	119	73	92	101	94	80	104	114	94	96	132	109	98	98	119	102	125	81
Montana	67	107	107	77	72	77	87	109	83	99	114	110	98	101	97	113	106	110	83	107	110	74
Nebraska	85	91	90	63	100	64	78	98	72	77	108	111	76	121	100	109	103	94	112	100	137	91
Nevada	89	92	74	79	96	114	99	131	94	123	149	82	109	95	126	108	64	72	89	95	95	107
New Hampshire	104	108	114	107	102	131	123	125	98	111	83	109	112	101	125	105	103	100	93	106	125	106
New Jersey	81	103	109	100	93	104	104	115	94	106	82	111	86	103	115	87	101	116	87	97	109	120
New Mexico	126	112	89	70	102	93	104	101	91	104	195	108	80	101	69	93	76	93	107	74	69	78
New York	97	107	96	89	97	102	111	106	87	103	81	112	100	95	125	94	110	103	87	104	108	98
North Carolina	88	106	79	108	97	121	106	97	99	91	78	104	88	108	110	99	103	114	109	92	83	100
North Dakota	88	100	79	56	105	52	99	90	83	102	136	110	107	125	87	97	106	102	95	106	97	72
Ohio	101	98	102	70	107	88	118	104	99	101	83	101	94	88	118	95	108	111	99	126	110	93
Oklahoma	96	103	93	83	112	69	86	101	81	103	113	121	88	111	127	108	96	97	118	104	106	71
Oregon	93	101	107	98	78	88	132	100	79	112	113	118	91	76	121	104	102	132	86	135	114	83
Pennsylvania	89	93	108	93	96	101	111	96	8	104	114	99	86	96	117	99	109	112	109	113	105	111
Rhode Island	94	122	106	92	89	120	103	116	90	94	76	106	72	99	87	88	112	109	82	93	106	98
South Carolina	76	112	75	93	89	119	108	85	90	93	99	92	101	116	91	116	124	102	88	122	98	98
South Dakota	65	108	91	65	81	49	89	83	74	80	126	121	88	119	91	144	98	104	90	94	116	73
Tennessee	87	120	103	95	100	95	113	100	100	86	74	102	84	109	116	109	89	116	115	127	116	84
Texas	94	110	84	86	121	99	86	87	79	113	140	107	82	116	108	122	86	80	114	83	76	83
Utah	75	100	79	71	81	127	110	113	86	118	155	94	105	112	136	125	124	96	111	78	110	92
Vermont	104	104	102	101	100	121	117	120	96	109	83	107	110	98	133	104	111	104	91	69	114	102
Virginia	91	107	99	114	109	127	116	116	99	106	79	116	86	104	117	118	118	118	118	127	91	60
Washington	122	128	137	111	84	94	125	85	93	101	98	96	79	71	112	108	105	128	87	118	107	67
West Virginia	99	102	113	87	119	98	116	99	101	104	84	113	93	104	117	85	85	115	105	118	109	67
Wisconsin	97	84	89	100	99	83	90	136	86	107	111	115	96	95	115	97	98	79	92	101	126	95
Wyoming	81	93	85	76	86	92	109	107	72	102	127	108	87	109	122	109	117	89	96	96	98	78



# TOTAL EVAPORATION AND WIND MOVEMENT

Table 7

YEAR 1952

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
<b>ALABAMA</b>														
Demopolis Lock #	EVAP	2.23	B2.57	4.35	4.87	B6.01	6.46	7.38	5.21	B4.76	3.63	B2.82	1.83	52.12
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2022	1648	2061	1418	683	377	604	670	1027	1151	B1358	1206	14225
Fairhope	EVAP	B2.37	B2.31	B3.67	B5.15	5.85	B6.97	5.24	5.94	B4.35	4.27	2.56	B1.61	50.29
	DEP	+ .39	- .05	+ .03	+ .24	- .27	+ .77	- .44	+ .33	- .18	+ .59	+ .19	- .01	+ 1.39
	WIND	B656	974	904	992	688	719	491	919	448	972	1021	1157	9941
Martin Dam	EVAP	B1.55	B1.74	4.74	6.14	-	-	B8.09	B5.64	5.44	B4.67	2.76	B2.04	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1180	B1146	1920	1620	-	-	793	713	947	1690	1530	1263	-
<b>ARIZONA</b>														
Bartlett Dam	EVAP	2.97	5.36	5.04	7.85	14.24	16.69	17.37	15.25	14.50	13.06	B5.78	3.69	121.80
	DEP	-1.12	+ .86	-2.06	-2.58	- .31	- .36	+ .14	+ .75	+1.80	+3.81	- .28	- .50	+ .17
	WIND	2040	1830	1920	1605	2025	1840	2120	2080	2110	2380	1930	2100	23980
Davis Dam	EVAP	2.82	B5.19	B6.34	B7.84	B12.98	13.76	13.16	13.52	9.91	7.71	4.69	3.33	101.25
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1160	1234	1392	932	806	1036	719	782	555	375	907	824	10722
Diamond Bar Ranch	EVAP	-	-	-	-	-	-	-	B11.55	B11.19	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	1107	982	B716	-	1614	-
Many Farms	EVAP	-	-	B4.95	8.03	12.29	15.30	13.78	11.97	9.10	6.98	B3.18	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2790	2920	4070	2236	3264	3350	2240	1930	1870	1320	1890	1560	29440
Mesa Exp. Farm	EVAP	2.01	3.75	5.13	6.71	B11.22	11.65	10.96	10.43	9.68	6.54	3.23	B2.19	83.50
	DEP	- .82	+ .26	- .54	- .83	+1.04	+ .35	- .27	+1.06	+2.23	+1.15	- .31	- .36	+2.96
	WIND	653	741	1189	799	814	734	680	634	590	256	666	592	8348
Nogales 2N	EVAP	-	-	-	-	-	-	-	-	-	8.40	4.28	2.80	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Pierce Ferry	EVAP	1.89	4.04	5.86	9.08	15.81	18.46	-	-	-	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	1998	1793	1868	2107	-	-	-	-	-	-	-
Roosevelt	EVAP	1.47	3.44	5.03	7.62	11.93	13.96	13.60	11.95	11.19	7.31	3.12	1.55	92.17
	DEP	- .36	+ .78	+ .13	+ .46	+1.51	+1.71	+1.32	+1.69	+3.09	+1.98	+ .25	- .26	+12.30
	WIND	1140	1770	2610	2060	1930	1880	1910	1980	2000	1350	1760	1450	21840
Sacaton	EVAP	3.00	4.97	6.29	8.16	13.42	14.14	13.24	10.94	8.96	6.96	B3.33	2.27	95.68
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	799	1271	1787	1309	1573	1392	1227	883	604	618	719	771	12953
San Carlos Res.	EVAP	B1.83	3.54	4.77	6.70	11.75	13.59	14.30	11.89	11.23	7.62	2.91	1.62	91.75
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	807	1006	1621	1183	1251	1179	1610	1364	1086	599	879	724	13309
Sierra Ancha	EVAP	B1.83	2.80	B3.75	B5.56	9.67	10.21	10.81	8.58	8.73	7.83	B3.00	1.78	74.55
	DEP	- .13	+ .44	- .52	- .30	+ .53	- .62	+ .45	- .10	+1.00	+2.18	- .34	- .45	+1.16
	WIND	434	370	484	488	397	386	331	221	405	344	334	416	4610
Tucson Univ. of Arizona	EVAP	2.91	4.69	5.65	8.32	12.83	13.82	13.37	10.77	10.97	8.27	3.77	2.75	98.12
	DEP	+ .59	+1.60	- .15	- .17	+1.61	+1.09	+1.65	+1.39	+2.96	+2.50	+ .44	+1.66	+15.17
	WIND	818	1036	1088	1046	1011	927	975	823	838	522	767	811	10662
Winkelman 9S	EVAP	B2.30	3.84	5.45	7.56	11.89	B13.70	12.68	9.84	B9.70	B6.44	B3.53	2.02	88.95
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	723	886	1224	903	906	788	853	1159	812	552	592	567	9965
Yuma Citrus Station	EVAP	2.87	4.45	6.25	8.56	12.35	13.44	14.82	14.08	9.98	7.08	3.79	2.36	100.03
	DEP	-1.12	- .53	-1.77	-1.89	-1.32	-1.42	-1.40	- .22	-1.48	-1.18	-1.57	-1.48	-15.38
	WIND	584	637	975	322	511	545	581	721	404	216	445	414	6355
<b>ARKANSAS</b>														
Hope	EVAP	B1.99	B2.33	B4.12	B4.84	-	B7.71	B7.60	B7.83	B6.60	B5.49	-	-	-
	DEP	- .35	- .33	- .26	- .70	-	+ .61	- .45	+ .20	+ .63	+ .81	-	-	-
	WIND	1362	1289	1629	1140	-	588	598	B494	512	692	-	-	-
Narrows Dam	EVAP	1.62	2.44	4.22	B5.22	6.95	9.74	B8.70	B8.27	7.70	5.61	B2.54	B1.55	64.56
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1134	1150	1338	1230	-	-	-	-	-	891	998	779	-
Simrod Dam	EVAP	-	-	-	-	B6.46	B9.13	B7.49	B6.63	B6.27	4.73	B2.71	-	-
	DEP	-	-	-	-	+ .50	+1.97	- .38	- .55	+ .75	+ .49	+ .21	-	-
	WIND	-	-	-	-	941	758	528	344	461	620	848	-	-
Norfolk Dam	EVAP	-	-	-	-	B6.47	9.76	B8.58	B6.92	5.54	B4.63	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	976	1052	948	660	602	940	-	-	-
Russellville	EVAP	-	B2.29	B3.91	B4.50	B5.87	B8.82	7.43	7.05	6.00	3.83	-	B1.06	-
	DEP	-	- .15	+ .05	- .58	- .16	+2.03	- .40	- .38	+ .45	- .23	-	- .21	-
	WIND	-	441	1000	614	473	461	B397	377	407	392	-	614	-
Stuttgart 9LSE	EVAP	-	-	B3.82	B3.13	B5.78	B7.84	B8.45	6.21	B5.81	B3.69	-	B1.27	-
	DEP	-	-	+ .40	-1.62	- .13	+ .74	+1.03	- .85	+ .61	+ .01	-	+ .05	-
	WIND	-	-	2205	1250	B1284	1049	920	630	-	730	-	1320	-
<b>CALIFORNIA</b>														
Backus Ranch	EVAP	2.06	4.09	5.56	8.13	14.25	13.15	B15.80	16.95	11.78	7.95	2.93	1.99	104.64
	DEP	- .98	+ .38	- .58	-1.29	+ .74	-3.34	-2.99	- .85	- .97	+ .33	-1.45	- .93	-11.93
	WIND	1267	1677	2805	2141	2725	2603	2105	2525	1300	727	826	1336	22037
	MAX	52.7	59.8	61.3	76.9	83.5	83.8	90.7	90.6	88.1	79.1	60.0	52.2	73.2
	MIN	35.1	37.1	36.6	46.8	52.9	52.8	62.3	62.4	59.0	52.8	35.8	34.5	47.3
Benmont WB	EVAP	2.47	4.29	3.81	4.92	9.48	9.59	12.65	12.41	9.95	8.30	4.03	3.33	85.23
	DEP	-1.86	+ .70	-1.29	- .88	+ .74	- .86	-1.12	+ .15	- .05	+1.16	-1.75	- .73	-5.79
	WIND	2350	2396	2218	1637	1425	1826	1515	1409	1469	1223	1807	2050	21325
	MAX	47.2	57.3	57.1	71.2	85.8	84.3	91.7	93.0	85.9	79.5	-	-	-
	MIN	32.9	34.9	35.2	44.4	50.6	50.5	59.8	59.9	56.7	49.6	-	-	-
Boca	EVAP	-	-	-	-	8.79	8.68	9.54	9.90	6.72	4.67	-	-	-
	DEP	-	-	-	-	+1.81	+ .40	-1.02	+ .42	- .28	+ .63	-	-	-
	WIND	1758	B1333	-	1835	2085	2056	1251	1304	997	461	852	1408	-
Camp Pardee	EVAP	- .74	- .86	2.05	3.41	7.53	8.15	11.17	10.61	7.33	4.04	1.55	- .77	58.21
	DEP	- .00	- .24	- .19	- .12	+ .64	-1.11	- .35	+ .60	- .20	+ .34	+ .26	+ .03	- .34
	WIND	1175	755	1132	541	736	1015	982	1000	796	578	726	1081	10517
Chico Exp. Station	EVAP	8.86	B1.69	B3.27	6.45	8.93	8.52	11.62	9.98	7.60	4.23	2.39	B.87	66.41
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2152	1602	1909	1391	1484	1829	1278	1123	1082	647	947	2169	17613

See reference notes at end of table.



# TOTAL EVAPORATION AND WIND MOVEMENT

Table 7

YEAR 1952

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
CALIFORNIA (Cont'd.)														
Chula Vista	EVAP	2.32	3.80	4.80	4.70	6.82	6.91	7.21	6.91	5.91	4.07	3.21	2.67	59.33
	DEP	-50	+56	-10	-1.09	+04	-07	-33	-25	-06	-67	-45	-12	-3.04
	WIND	2031	2108	3127	2381	2772	3050	2991	2637	2359	2034	1746	1736	28972
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	63.2
Davis Agr. College	EVAP	-	81.71	84.31	86.17	9.35	8.80	10.59	9.74	7.44	4.45	82.67	-	-
	DEP	-	-11	+67	+68	+1.15	-89	-16	+05	-56	-55	+24	-	-
	WIND	1998	1492	2559	1981	1602	1475	937	1046	843	564	522	1014	16033
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Fall River Mills Intake	EVAP	-	-	1.98	5.87	7.93	8.03	11.23	10.42	6.44	3.73	-	-	-
	DEP	-	-	-1.03	+1.03	+5.8	-99	-85	-40	-65	-06	-	-	-
	WIND	-	886	2221	2514	2352	2380	1927	2019	1274	568	690	921	-
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Friant Govt. Camp	EVAP	1.76	2.57	3.60	5.52	11.84	11.65	13.45	13.22	9.77	6.46	3.12	1.66	84.62
	DEP	+51	+62	-08	-15	+1.56	-12	-39	-07	+74	-07	+52	+41	99
	WIND	2145	1385	2379	1202	1455	1606	1138	974	909	585	897	1659	16334
	MAX MIN	50.1	59.1	60.6	74.3	84.0	85.0	92.2	89.9	85.7	78.3	60.0	51.9	72.6
Lakeshore	EVAP	-	81.29	83.36	5.02	86.81	86.65	9.66	9.04	6.21	3.52	81.51	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	490	309	658	707	422	463	340	386	320	201	280	525	5101
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Lodi	EVAP	1.15	1.39	3.60	5.15	9.41	8.61	9.24	8.36	6.04	4.04	2.16	1.25	60.40
	DEP	+13	-45	+01	-63	+54	-2.08	-2.66	-1.96	-1.70	-40	+16	+25	-8.79
	WIND	2368	1271	2422	1588	1740	1838	1378	994	720	651	991	2372	18333
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Newark	EVAP	2.37	1.60	3.83	4.72	7.39	7.80	8.18	7.54	6.11	3.25	2.32	1.93	57.09
	DEP	+1.01	-30	+41	-33	+20	-47	-57	-19	-49	-1.07	-03	+72	-1.11
	WIND	2149	1516	2802	2258	2101	2497	2064	2318	1759	972	911	1502	22849
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Oakdale, Woodward Dam	EVAP	1.57	1.46	2.83	4.61	10.13	10.27	13.48	12.01	7.94	4.59	2.02	1.34	72.25
	DEP	+36	-30	-47	-65	+70	-2.19	-1.16	-76	-1.01	-59	-49	+18	-6.38
	WIND	5161	3172	4546	2749	3801	3935	3946	3541	2442	2540	1793	4478	42104
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Salt Springs PH	EVAP	-	82.12	-	5.46	7.78	6.69	9.74	11.10	7.72	6.09	3.13	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Shasta Dam	EVAP	8.83	2.01	3.86	6.69	8.98	8.06	12.60	11.31	8.61	5.94	83.70	8.66	73.25
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2744	2454	2716	2951	2997	2651	2718	2249	2248	2259	2916	2916	31819
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Tahoe	EVAP	-	-	-	-	-	4.71	5.65	5.62	2.89	1.37	-	-	-
	DEP	-	-	-	-	-	+40	+16	-1.10	-1.29	-1.13	-	-	-
	WIND	8963	570	-	1167	1369	-	-	-	-	-	1556	996	-
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Turntable Creek	EVAP	81.78	83.47	84.44	6.51	86.94	6.86	10.13	10.20	8.09	6.30	84.71	81.33	70.76
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2160	1883	2212	2240	1961	2001	1983	1798	1594	1559	2302	2133	23826
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
COLORADO														
Bonny Dam	EVAP	-	-	-	-	8.66	14.34	15.68	12.02	11.49	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	3140	4120	5160	5120	3570	3610	-	3750	4520	3620	4390	3490	-
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Conejos 3NNW	EVAP	-	-	-	85.20	7.75	8.35	8.10	6.65	7.43	86.19	-	-	-
	DEP	-	-	-	-1.10	-28	-64	+1.18	-28	+43	+1.31	-	-	-
	WIND	3314	82008	3640	2559	2910	2972	1533	869	1106	1244	1922	1262	25339
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
De Beque	EVAP	-	-	-	-	88.07	811.09	9.97	6.66	6.30	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	861	1161	1414	1640	1527	1335	893	633	642	451	865	642	12064
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Estes Park	EVAP	-	-	-	-	6.32	10.30	8.61	6.26	5.50	83.62	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	5612	4727	4034	2768	2791	2467	2119	1969	1769	1867	2110	3867	36100
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Fort Collins (a)	EVAP	-	-	-	83.83	4.60	87.83	7.05	6.06	5.46	83.42	-	-	-
	DEP	-	-	-	-56	-13	+2.25	+16	-40	+11	+34	-	-	-
	WIND	1624	1740	1951	1826	1188	933	830	975	795	688	878	1141	14569
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Grand Junction WB AP	EVAP	-	-	-	9.03	12.25	19.36	17.97	14.68	13.04	9.13	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2223	2892	4106	3678	4098	4559	3892	3630	3712	2843	2346	1960	39939
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Grand Lake 6SSW	EVAP	-	-	-	-	4.64	87.99	88.76	5.94	6.01	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	829	513	882	81882	2383	2389	2407	2449	2280	-
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Green Mt. Dam	EVAP	-	-	-	-	84.30	87.32	6.15	4.62	4.58	3.48	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2208	1865	1986	1844	1373	1400	1126	8920	1058	1219	1458	1741	18198
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
John Martin Dam	EVAP	-	-	-	86.50	10.07	15.23	15.30	11.09	8.90	5.57	-	-	-
	DEP	-	-	-	-59	+88	+4.51	+3.07	-12	+03	+57	-	-	-
	WIND	2623	3170	3895	3354	3046	3475	3662	2623	3005	1990	2850	2600	36293
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Montrose 1	EVAP	81.57	1.50	3.12	6.37	8.88	11.41	9.98	6.73	5.60	4.49	1.59	1.19	62.43
	DEP	+36	+02	+09	+1.30	+1.72	+2.48	+45	-55	-60	+99	-03	-07	+6.16
	WIND	1287	1131	1844	1502	1645	1530	860	755	781	507	601	445	12888
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Platoro Dam	EVAP	-	-	-	-	-	88.96	87.05	4.98	4.95	4.17	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	2595	1514	1216	996	1041	-	-	-
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Pueblo City Res.	EVAP	-	-	-	86.70	8.23	12.48	12.34	9.75	7.61	5.83	-	-	-
	DEP	-	-	-	-36	-21	+1.86	+83	-14	-53	+27	-	-	-
	WIND	4120	3840	4070	3400	3160	2810	2970	2430	2110	1950	2470	3110	36440
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
San Luis Lake 3W	EVAP	-	-	-	-	8.97	11.10	9.13	7.70	6.11	4.68	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1910	2090	3140	2771	2809	2810	2070	1450	1380	1090	1730	750	24000
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Sugar Loaf Res.	EVAP	-	-	-	-	-	87.93	7.73	6.99	85.94	-	-	-	-</



# TOTAL EVAPORATION AND WIND MOVEMENT

Table 7

YEAR 1952

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
FLORIDA (Cont'd.)														
Belle Glade Exp. Station	EVAP	3.71	4.29	5.88	87.17	7.24	86.59	86.49	6.11	85.27	83.56	4.14	83.67	64.12
	DEP	+ .49	+ .24	+ .09	+ .53	-.01	+ .31	+ .17	-.25	-.06	-1.47	+ .37	+ .66	+1.07
	WIND	4666	-	-	5918	84334	3042	3443	82890	83559	84350	84734	85100	-
(b)														
Belle Glade Hrcn. Gate 4	EVAP	3.82	3.59	5.20	6.08	5.78	5.17	4.86	4.43	3.11	2.42	3.27	3.00	50.73
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Clewiston U.S. Engrs. (b)	EVAP	3.56	3.71	5.16	6.14	6.63	6.23	5.44	4.63	4.83	3.18	4.05	3.45	57.01
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
	MAX	74.8	74.3	82.9	84.6	91.8	97.2	95.5	95.6	94.0	83.7	79.9	72.1	85.5
	MIN	64.5	62.6	67.7	70.0	77.5	82.9	83.0	83.2	81.7	75.7	69.5	53.8	72.7
Hialeah	EVAP	84.12	4.89	5.90	7.50	6.72	6.57	86.73	87.23	85.47	83.66	3.90	3.40	66.09
	DEP	+ .67	+ .53	-.17	+ .33	-.96	-.34	+ .09	+ .45	-.25	-1.48	-.13	+ .11	-1.15
	WIND	1426	1656	1973	2185	1627	1235	1416	-	-	1170	1363	1143	-
Lake Placid 2SW	EVAP	3.47	3.92	5.50	87.10	87.94	7.25	6.71	86.10	5.52	3.68	3.54	3.07	63.80
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	784	888	1172	1149	738	476	476	380	499	826	694	800	8882
Loxahatchee (b)	EVAP	82.23	83.10	4.24	-	86.45	5.98	86.21	85.48	84.36	82.85	2.56	2.22	-
	DEP	-1.27	-1.08	-1.51	-	-1.07	-.87	+ .03	-1.23	-1.73	-2.43	-1.40	-.92	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Moore Haven Lock 1 (b)	EVAP	4.47	84.62	6.57	8.09	88.26	87.47	85.53	86.62	6.43	4.24	4.45	3.79	70.54
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2039	2296	2774	2458	1728	1398	1522	1120	1785	2425	2160	1938	23643
Okeechobee Hrcn. Gl. 6 (b)	EVAP	3.95	3.79	5.46	6.94	7.40	7.24	-	-	85.36	-	-	3.99	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Orlando Water Plant	EVAP	2.61	3.11	84.62	6.58	-	-	86.61	6.23	84.79	3.40	3.15	2.24	-
	DEP	-.27	-.67	-.73	+ .02	-	-	-.22	+ .17	-.37	-1.42	-.28	-.43	-
	WIND	990	1172	1257	1219	-	-	8789	665	937	-	889	815	-
Port Mayaca S. L. Cnl. (b)	EVAP	3.60	4.29	6.06	8.20	7.96	7.24	86.75	6.66	-	83.64	4.86	4.86	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Tamiami Trail 40 Mi. Bd.	EVAP	-	-	-	86.82	86.74	86.49	-	-	-	84.65	4.37	83.85	-
	DEP	-	-	-	.00	-.51	-.20	-	-	-	-.66	+ .35	+ .77	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Vero Beach CAA Airport	EVAP	-	-	6.42	8.31	8.26	88.11	7.77	87.47	86.73	84.61	4.87	3.81	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
GEORGIA														
Ailey	EVAP	2.37	82.90	85.74	-	-	-	88.48	87.58	84.65	83.68	2.46	81.78	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1033	1168	1322	-	-	-	428	471	487	425	626	711	-
Allatoona Dam 2	EVAP	-	-	-	-	87.34	87.02	9.74	86.75	84.62	3.96	2.58	1.71	-
	DEP	-	-	-	-	1572	1143	1696	1532	1483	1720	2050	2566	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Athens WB Airport	EVAP	2.04	82.61	84.31	5.54	7.41	8.55	9.43	86.23	6.11	4.75	2.94	82.18	62.10
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2269	2678	2515	1733	1640	1431	1517	1267	1540	1600	2002	2188	22380
Experiment	EVAP	82.33	82.52	84.34	85.16	6.65	7.62	9.81	85.99	84.40	3.57	4.30	1.86	58.55
	DEP	+ .25	-.02	-.05	-.65	-.69	-.14	+2.78	-.29	-1.02	-1.72	+1.72	-.09	+1.16
	WIND	1909	1720	1975	1457	1157	731	1190	870	733	699	1265	573	14279
Hoggards Mill	EVAP	2.08	82.47	4.89	5.44	6.80	8.85	8.01	6.42	4.72	4.23	2.43	1.49	57.83
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	594	674	932	686	446	405	441	348	396	466	443	417	6248
Rome WB Airport	EVAP	81.72	81.94	83.97	5.00	6.16	7.24	9.09	85.28	84.32	83.61	2.81	81.37	52.51
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1070	999	1549	1400	708	416	1002	563	417	943	1384	1331	11782
Tifton 2N	EVAP	82.08	82.37	85.21	5.20	6.56	7.85	7.72	5.76	84.83	4.14	2.41	2.37	56.50
	DEP	-.31	-.44	+ .46	-.82	-.98	+ .82	+1.21	-.23	-.09	+ .09	-.27	+ .43	-.13
	WIND	1514	1419	1889	1321	843	664	511	235	808	748	708	741	11401
IDAHO														
Aberdeen Exp. Station	EVAP	-	-	-	-	-	88.54	8.85	9.26	85.64	-	-	-	-
	DEP	-	-	-	-	-	+1.13	-.01	+1.42	+ .51	-	-	-	-
	WIND	2695	2736	3311	2133	82972	3155	2430	2359	1710	1729	1701	2946	29877
Arrowrock Dam	EVAP	-	-	-	-	6.08	86.77	9.03	9.61	6.22	3.26	-	-	-
	DEP	-	-	-	-	-.31	-.49	-1.61	+ .14	+ .42	+ .85	-	-	-
	WIND	-	-	-	-	1351	81559	1221	1248	877	-	-	-	-
Lifton Pumping Station	EVAP	-	-	-	-	7.11	8.36	9.08	8.02	6.23	4.08	-	-	-
	DEP	-	-	-	-	+ .59	+ .75	-.19	-.41	+ .47	+1.10	-	-	-
	WIND	999	1460	2040	1910	3130	2659	1947	2198	2374	1727	2473	2085	25002
Minidoka Dam	EVAP	-	-	-	-	8.91	10.30	12.40	12.52	8.68	5.97	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	4215	4525	4530	3670	4110	3840	3210	3390	3000	2930	3330	4730	45480
Moscow Univ. of Idaho	EVAP	-	-	-	4.26	4.93	5.48	8.54	8.29	5.09	-	-	-	-
	DEP	-	-	-	+1.18	+ .73	+ .25	+ .80	+2.18	+1.66	-	-	-	-
	WIND	-	-	-	1785	1147	1510	1497	1385	1152	-	-	-	-
Palisades Dam	EVAP	-	-	-	-	-	7.75	7.88	8.10	6.28	4.48	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
ILLINOIS														
Carbondale Sewage Plant	EVAP	-	-	-	84.55	85.36	7.65	86.79	86.14	85.11	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	1560	1000	736	778	995	1142	-	-	-	-
Rockford 4NE	EVAP	-	-	-	-	83.58	84.29	84.57	2.72	82.57	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	1693	1853	81572	578	-	-	-	-	-
Springfield WB Airport	EVAP	-	-	-	86.89	7.07	10.40	10.07	7.84	87.89	85.86	-	-	-
	DEP	-	-	-	+1.70	+1.17	+3.42	+1.68	+ .62	+2.22	+2.14	-	-	-
	WIND	-	-	-	3224	3034	2381	2506	1789	1956	82903	-	-	-
Urbana Engr. Campus	EVAP	-	-	-	83.76	84.99	6.93	6.65	4.99	4.54	3.28	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	1182	8921	738	618	-	-	-	-	-	-

See reference notes at end of table.



Table 7

## TOTAL EVAPORATION AND WIND MOVEMENT

YEAR 1952

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
<b>INDIANA</b>														
Evansville WB Airport	EVAP	-	-	-	4.87	6.37	9.67	9.61	7.40	86.00	4.83	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	2888	2313	1828	1647	1445	1440	2112	-	-	-
Kendallville	EVAP	-	-	-	84.34	4.83	6.73	7.20	86.20	4.73	3.52	81.90	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	2411	1377	766	829	714	866	1554	2189	-	-
Oaklendon Geist Res.	EVAP	-	-	-	3.58	4.44	86.73	6.77	5.18	84.52	3.38	81.83	-	-
	DEP	-	-	-	-34	-48	+1.03	+ .07	- .76	+ .25	+1.08	-	-	-
	WIND	-	-	-	1893	996	499	534	516	634	1089	1756	-	-
Valparaiso Wtr. Wks.	EVAP	-	-	-	83.86	4.32	6.85	5.91	85.19	84.43	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	1888	971	693	313	206	483	-	-	-	-
<b>IOWA</b>														
Ames JSW	EVAP	-	-	-	84.60	5.88	88.22	8.85	5.45	5.85	4.50	82.48	-	-
	DEP	-	-	-	+ .30	- .69	+ .42	- .40	-2.10	+ .26	+ .88	-	-	-
	WIND	-	-	-	2585	2131	2510	2341	1502	1675	1982	2287	-	-
Cherokee	EVAP	-	-	-	4.09	5.21	8.22	87.66	5.38	5.00	3.89	82.44	-	-
	DEP	-	-	-	+ .40	- .96	+1.35	- .53	-1.51	- .20	+ .44	-	-	-
	WIND	-	-	-	2517	1721	1655	1494	908	1258	2109	2648	-	-
Iowa City IS	EVAP	-	-	-	4.33	5.19	7.08	7.72	5.46	4.99	4.07	82.36	-	-
	DEP	-	-	-	- .59	- .52	+ .54	- .08	- .85	- .03	+ .75	-	-	-
	WIND	-	-	-	2648	1988	1812	1804	1299	1371	1995	2582	-	-
Norwich 2E SCS Farm	EVAP	-	-	-	-	87.12	811.44	89.85	6.84	6.21	-	-	-	-
	DEP	-	-	-	-	+ .44	+3.43	+ .71	+ .99	- .18	-	-	-	-
	WIND	-	-	-	-	2013	2198	1872	1230	1319	-	-	-	-
<b>KANSAS</b>														
Cedar Bluff Dam	EVAP	-	-	-	84.93	9.09	18.06	16.57	812.14	11.54	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	84450	4269	5337	4868	3463	3571	-	-	-	-
Fall River Dam	EVAP	-	-	-	5.08	8.30	11.57	10.61	10.47	9.42	8.14	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	3024	3122	3843	3191	3201	2338	2826	-	-	-
Hays IS	EVAP	-	-	-	5.86	9.38	17.80	820.16	14.26	13.76	-	-	-	-
	DEP	-	-	-	-2.13	- .25	+5.76	+5.08	+2.63	+2.63	-	-	-	-
	WIND	-	-	-	4005	3796	5659	5635	3905	4199	-	-	-	-
Kanopolis Dam	EVAP	-	-	-	-	8.75	816.24	15.79	810.92	11.25	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	4095	4073	-	-	-	-
Manhattan Agro. Farm	EVAP	-	-	-	-	6.89	12.32	12.20	8.72	8.17	5.93	-	-	-
	DEP	-	-	-	-	- .56	+3.38	+1.78	- .39	+ .70	+1.41	-	-	-
	WIND	-	-	-	-	1610	2540	2159	2048	1275	1489	-	-	-
Tribune 1W	EVAP	-	-	-	7.13	89.10	17.21	20.65	11.77	10.86	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	4700	3893	4338	4153	3193	3477	-	-	-	-
<b>KENTUCKY</b>														
Burgin Dix Dam	EVAP	-	-	-	83.80	5.22	6.29	6.86	5.65	4.69	3.11	82.09	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	8769	252	117	99	33	84	298	571	-	-
Wolf Creek Dam	EVAP	81.66	81.38	83.50	84.08	-	8.21	9.60	6.97	5.46	3.67	82.47	81.14	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1475	932	1395	1012	-	945	1077	954	781	818	1128	1142	-
<b>LOUISIANA</b>														
Catfish Point (c)	EVAP	2.01	82.09	3.29	84.07	85.10	86.04	85.27	5.47	4.92	3.84	82.16	81.57	45.83
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	3701	3234	3365	3022	2496	1912	2126	1932	2166	1670	2566	2399	26888
Hackberry	EVAP	2.74	83.76	84.74	6.30	86.70	87.88	89.29	88.01	6.97	85.69	83.39	82.45	67.92
	DEP	- .79	+ .12	- .04	- .02	-1.39	+ .06	+ .67	- .03	- .05	- .29	- .39	- .44	-2.59
	WIND	5415	4855	5390	5068	4162	3611	-	2826	-	84442	4837	3753	-
<b>MARYLAND</b>														
Beltsville	EVAP	-	-	-	-	84.65	6.95	7.07	85.27	83.90	2.95	-	-	-
	DEP	-	-	-	-	-1.51	+ .49	- .07	- .92	- .84	- .34	-	-	-
	WIND	-	-	-	-	914	785	734	666	465	962	-	-	-
Salisbury U.S.G.S	EVAP	81.81	2.21	3.04	5.02	6.36	8.59	8.81	6.44	5.22	3.44	2.10	1.27	54.31
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2438	2319	2534	2326	1712	1704	1376	1134	1235	1427	1209	1506	20920
Savage River Dam	EVAP	-	-	-	1.91	85.83	7.97	6.97	85.30	4.41	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	2099	2163	1731	1303	1105	1148	-	-	-	-
<b>MASSACHUSETTS</b>														
Rochester	EVAP	-	-	-	83.51	4.74	6.39	7.56	5.01	4.69	2.57	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	81701	1532	1288	1130	850	890	1067	-	-	-
<b>MICHIGAN</b>														
Dearborn	EVAP	-	-	-	-	-	-	-	-	5.46	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	2068	-	-	-	-
East Lansing Exp. Farm	EVAP	1.01	-	-	-	6.79	8.71	88.47	6.66	4.84	84.06	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	84520	-	-	-	2430	2135	2320	1457	1653	2883	-	-	-
Germfask Wildlife Refuge	EVAP	-	-	-	-	85.45	86.73	86.21	85.65	83.50	81.92	-	-	-
	DEP	-	-	-	-	+ .83	+ .93	- .42	+ .46	+ .45	- .04	-	-	-
	WIND	-	-	-	-	82628	1721	1685	1480	81319	82288	-	-	-
Lupton ISW	EVAP	-	-	-	-	-	6.54	86.02	84.79	83.28	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	883	734	532	560	-	-	-	-
South Haven Exp. Farm	EVAP	-	-	-	-	85.52	6.54	86.86	5.63	4.71	83.80	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	81852	1701	1390	1005	1278	2053	-	-	-
<b>MISSISSIPPI</b>														
Sardis Dam	EVAP	82.29	2.25	4.93	84.58	6.73	9.71	88.27	88.05	86.58	84.55	-	81.27	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	84396	1908	2331	1525	1069	1038	81022	8898	1209	1393	-	875	-

See reference notes at end of table.



# TOTAL EVAPORATION AND WIND MOVEMENT

Table 7

YEAR 1952

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
MISSISSIPPI (Cont'd.)														
Scott	EVAP	-	-	-	-	-	-	-	-	-	-	B2.98	B1.86	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	B1470	1554	-
State College	EVAP	B2.41	B3.23	5.24	B5.91	7.74	B10.39	B10.30	7.60	7.06	5.61	3.50	B2.27	71.26
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2583	2512	2861	2430	1708	1367	1203	848	1261	1790	2120	2019	22702
MISSOURI														
Columbia 9NW U. of Mo.	EVAP	-	-	-	B4.51	5.21	B8.26	8.55	B5.62	4.93	5.78	-	-	-
	DEP	-	-	-	+ .09	+ .06	+1.73	+ .85	- .92	+ .16	+2.69	-	-	-
	WIND	-	-	-	1902	1521	1279	1455	1040	757	1390	-	-	-
Lakeside	EVAP	-	B1.40	2.69	4.24	5.84	9.43	9.00	B6.78	4.92	4.43	B2.48	-	-
	DEP	-	- .36	- .83	-1.14	- .51	+2.21	+ .29	- .75	- .63	+ .50	+ .15	-	-
	WIND	-	1595	2456	1716	1225	738	1045	636	388	906	1399	-	-
St. Louis Washington U.	EVAP	-	-	-	B3.92	5.30	8.18	B7.72	B5.89	4.86	3.10	-	-	-
	DEP	-	-	-	+ .18	+ .37	+2.36	+ .88	+ .06	+ .35	+ .19	-	-	-
	WIND	-	-	-	B1574	1248	947	907	718	703	1054	-	-	-
MONTANA														
Alzada 6NW	EVAP	-	-	-	B8.13	B7.14	B12.67	B13.15	12.51	10.83	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	B3403	B3257	3990	3773	3234	3448	-	-	-	-
Babb 6NE	EVAP	-	-	-	-	-	5.68	5.72	5.29	4.86	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	1487	B987	794	1507	-	-	-	-
Bozeman Agri. College	EVAP	-	-	-	-	B5.77	B7.26	B8.46	7.54	5.32	3.10	-	-	-
	DEP	-	-	-	-	+ .27	+1.33	+ .58	+ .23	+ .81	+ .56	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Dillon WME	EVAP	-	-	-	-	-	5.57	7.00	5.57	3.71	B2.35	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	212	140	147	160	192	-	-	-
Fort Assinniboine	EVAP	-	-	-	B7.41	8.53	11.56	12.04	10.95	7.50	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	6265	4877	4300	4397	3995	5677	4394	3580	4045	3824	4660	4985	54999
Fort Peck	EVAP	-	-	-	-	B7.46	10.20	9.52	8.43	5.73	-	-	-	-
	DEP	-	-	-	-	- .14	+2.42	- .81	- .66	- .10	-	-	-	-
	WIND	-	-	-	-	B2779	4185	2896	2331	2552	-	-	-	-
Hungry Horse Dam	EVAP	-	-	-	-	4.59	5.00	7.10	7.29	4.02	B2.27	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Lonesome Lake	EVAP	-	-	-	-	7.03	B8.34	8.76	B7.72	B5.69	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Malta	EVAP	-	-	-	-	5.19	6.39	B6.44	6.09	3.52	2.59	-	-	-
	DEP	-	-	-	-	-2.10	- .56	-2.60	-1.54	-1.19	- .35	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Terry	EVAP	-	-	-	-	B7.27	B10.92	11.28	9.63	6.01	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	2433	2798	-	B1595	1322	1718	1946	1262	-
Tiber Lake	EVAP	-	-	-	B7.54	7.54	10.04	B12.88	B9.74	6.83	4.00	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Valier	EVAP	-	-	-	-	B7.01	B9.34	9.41	B9.77	8.30	-	-	-	-
	DEP	-	-	-	-	- .00	+2.67	+ .92	+1.68	+2.32	-	-	-	-
	WIND	-	-	-	-	B2531	3140	-	2580	2290	2480	-	-	-
Yellowtail Dam	EVAP	-	-	-	-	-	-	11.00	-	-	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
NEBRASKA														
Box Butte Exp. Farm (d)	EVAP	-	-	-	-	B5.49	B8.33	B10.37	B9.33	B7.05	-	-	-	-
	DEP	-	-	-	-	-2.49	+ .54	+ .55	- .11	+ .42	-	-	-	-
	WIND	-	-	-	-	B5726	4803	4797	4898	4233	-	-	-	-
Bridgeport	EVAP	-	-	-	5.40	6.06	9.59	10.85	B9.21	7.30	4.85	-	-	-
	DEP	-	-	-	+ .40	- .39	+2.10	+1.92	+ .83	+1.83	+1.47	-	-	-
	WIND	-	-	-	2042	1794	B1763	1610	1613	1246	1419	-	-	-
Enders Dam	EVAP	-	-	-	-	7.38	11.90	13.97	11.08	8.99	5.55	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	2242	2134	2586	1991	1819	1451	-	-	-
Harlan County Dam	EVAP	-	-	-	-	-	-	-	-	B8.11	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	2546	-	-	-	-
Indianola 2N	EVAP	-	-	-	B5.44	7.71	13.13	14.52	10.08	10.49	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	2180	2786	3430	2757	2736	-	-	-	-
Kingsley Dam	EVAP	-	-	-	-	5.86	9.20	10.70	8.04	6.91	4.29	-	-	-
	DEP	-	-	-	-	-1.77	+ .37	- .32	-1.97	- .20	- .28	-	-	-
	WIND	-	-	-	-	2023	1798	2244	1911	1697	1633	-	-	-
Lincoln Agro. Farm	EVAP	-	-	-	B3.82	6.33	9.17	B8.73	5.83	5.70	3.80	-	-	-
	DEP	-	-	-	-1.91	- .67	+ .59	-1.81	-2.95	-1.24	- .83	-	-	-
	WIND	-	-	-	1405	995	1055	447	534	362	666	-	-	-
Medicine Creek Dam	EVAP	-	-	-	B6.01	8.12	13.03	B12.52	9.11	10.17	B6.96	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	B2892	2746	2714	2794	2120	2402	1789	-	-	-
Mitchell SE (e)	EVAP	-	-	-	4.59	B4.67	B6.74	6.85	B6.19	4.79	-	-	-	-
	DEP	-	-	-	- .08	-1.36	- .10	-1.18	- .88	- .31	-	-	-	-
	WIND	-	-	-	3650	3233	2703	286	2131	1787	-	-	-	-
(f)														
North Platte Exp. Farm	EVAP	-	-	-	B4.38	4.97	8.53	10.34	7.24	6.72	-	-	-	-
	DEP	-	-	-	- .84	-1.38	+1.05	+1.08	- .61	+ .80	-	-	-	-
	WIND	-	-	-	6260	4560	5101	5870	4245	2635	-	-	-	-
Rosemont 2S	EVAP	-	-	-	5.68	9.29	B15.01	B12.35	B9.31	10.65	7.62	-	-	-
	DEP	-	-	-	- .75	+ .37	+4.46	+ .14	-1.88	+1.45	+1.28	-	-	-
	WIND	-	-	-	5126	4469	5059	4353	3300	3530	3602	-	-	-

See reference notes at end of table.



# TOTAL EVAPORATION AND WIND MOVEMENT

Table 7

YEAR 1952

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
NEBRASKA (Cont'd.) Valentine Lakes Game Ref.	EVAP	-	-	-	-	B5.96	B8.44	B10.84	B8.31	B6.89	B5.03	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	2340	B2690	B3028	3460	3270	3160	-	-	-
NEVADA Boulder City	EVAP	2.53	B4.94	6.36	8.85	13.75	15.55	14.22	13.55	10.51	7.28	4.45	2.65	104.64
	DEP	-1.04	+6.66	-1.22	-2.84	-1.37	-1.87	-3.01	-1.69	-1.54	-.69	-.42	-.65	-15.68
	WIND	2716	2730	3857	2531	2585	2573	1534	1565	1491	976	2278	2097	26933
	MAX MIN	- -	57.1 37.4	61.9 40.1	77.5 50.1	88.5 58.3	89.9 59.0	95.4 67.0	94.3 69.0	86.2 62.7	77.6 54.9	57.8 41.0	52.5 38.2	-
Fallon Exp. Station (f)	EVAP	-	1.73	2.61	4.64	6.19	6.07	7.53	6.84	4.52	4.23	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2181	1945	3220	1867	2146	2117	1570	1226	1044	490	845	1628	20279.
Lahontan Dam	EVAP	-	-	-	-	B10.43	10.61	12.64	14.12	B9.03	6.19	-	-	-
	DEP	-	-	-	-	+1.05	-1.25	-1.10	+1.10	+1.54	+2.00	-	-	-
	WIND	-	-	-	-	2145	2448	2129	2472	1743	1365	-	-	-
Ruby Lake	EVAP	-	-	-	-	-	B10.41	B14.71	11.22	7.35	5.16	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1820	1310	B2319	1651	1900	1765	1190	1040	775	545	630	1085	16030
Rye Patch Dam	EVAP	-	-	-	-	9.00	8.62	11.77	11.13	7.11	4.85	-	-	-
	DEP	-	-	-	-	-.37	-1.90	-3.45	-2.25	-2.20	-.16	-	-	-
	WIND	-	-	-	-	1736	1536	1768	1050	1364	831	-	-	-
NEW HAMPSHIRE Lakeport 2	EVAP	-	-	-	-	-	B6.79	B8.34	B6.27	B4.34	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	1495	1515	1405	1485	-	-	-	-
Massabesic Lake	EVAP	-	-	-	-	-	6.27	6.93	B4.68	3.34	2.16	-	-	-
	DEP	-	-	-	-	-	+.94	+.62	-.40	-.34	-.29	-	-	-
	WIND	-	-	-	-	-	535	519	287	369	794	-	-	-
NEW JERSEY Pleasantville	EVAP	-	-	-	-	5.04	6.27	6.89	B5.66	B3.39	-	-	-	-
	DEP	-	-	-	-	-.68	+.20	+.45	+.02	-.73	-	-	-	-
	WIND	-	-	-	-	1206	750	642	482	412	-	-	-	-
NEW MEXICO Agricultural College	EVAP	3.58	4.54	B7.68	9.55	13.03	12.97	12.57	10.44	9.42	5.94	3.53	2.38	95.64
	DEP	+6.60	+1.10	+0.06	-.33	+1.16	+.10	+.70	+.20	+1.22	-.22	-.34	-.28	+2.97
	WIND	1380	1783	2813	2297	2024	1560	1553	1184	1335	762	1334	1220	19245
Alamogordo Dam	EVAP	4.41	6.08	8.31	9.33	B14.22	16.77	14.63	12.86	B10.28	B6.75	B4.15	-	-
	DEP	+1.39	+1.64	+2.27	-1.07	+1.52	+2.60	+1.14	+.97	+.32	-.27	-.35	-	-
	WIND	2749	3245	4245	2596	3066	2417	1285	730	B1204	-	2387	2763	-
Bitter Lake WL	EVAP	3.40	4.49	7.21	8.13	11.51	13.35	B12.08	11.85	B10.02	6.21	2.84	2.35	93.44
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	976	1490	2487	1283	1256	1412	974	479	445	206	391	674	12073
Bosque Del Apache	EVAP	3.97	5.28	7.24	8.97	12.00	14.94	11.75	11.45	9.17	6.56	B3.83	B1.96	97.12
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1485	1735	2550	1600	1500	850	640	660	480	410	1530	1260	14700
Caballo Dam	EVAP	B4.86	5.00	7.56	10.29	14.14	15.54	13.09	12.76	11.06	7.93	4.62	2.67	109.52
	DEP	+1.67	-.35	-1.30	-2.15	-1.50	-1.42	+.72	+.60	+.61	-.35	-.40	-.40	-
	WIND	3140	3272	3890	3385	3586	2936	2675	2591	2202	1756	2446	1731	33610
Clovis 13N	EVAP	-	-	B7.44	9.03	13.51	16.03	14.45	15.12	10.97	8.66	B5.69	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	3901	4389	3681	3260	2739	2688	2833	2289	-
Conchas Dam	EVAP	-	-	-	7.80	10.63	14.05	B11.62	11.26	8.87	6.76	-	-	-
	DEP	-	-	-	-2.01	-.92	+.63	-1.23	-.54	-.79	-.19	-	-	-
	WIND	3296	2953	4055	B2897	3165	3465	2671	2099	1945	1565	2221	1935	32267
Eagle Nest	EVAP	-	-	-	-	-	-	8.84	6.59	5.66	-	-	-	-
	DEP	-	-	-	-	-	-	+1.32	-.25	+.29	-	-	-	-
	WIND	2974	1954	2464	2015	2087	1927	1634	1210	1217	1330	1429	1316	21557
Elephant Butte	EVAP	4.70	5.58	8.42	11.58	15.36	17.32	14.35	13.92	11.72	8.76	5.10	2.93	119.74
	DEP	+1.72	+.97	+.35	+.55	+1.48	+2.12	+1.33	+3.14	+2.42	+1.32	+.61	-.10	+15.91
	WIND	2834	2903	3965	-	3146	2948	2545	2409	2032	1750	2680	1756	-
El Vado Dam	EVAP	-	-	-	-	B7.30	9.46	9.53	7.88	6.49	5.20	-	-	-
	DEP	-	-	-	-	-1.12	-.62	+.18	+.02	+.01	+.82	-	-	-
	WIND	-	-	-	B971	944	701	719	739	714	684	-	-	-
Farmington 2	EVAP	-	-	B3.67	6.57	8.36	9.25	8.30	8.23	6.17	5.04	B1.36	-	-
	DEP	-	-	-.08	+.65	+1.15	+1.62	+.94	+2.23	+1.33	+1.42	-.68	-	-
	WIND	960	1368	1901	1776	1270	885	495	399	409	468	585	1214	11730
Florida	EVAP	B3.16	5.37	B6.89	B10.33	13.57	12.69	B10.13	9.80	B9.69	7.32	3.93	3.26	96.14
	DEP	-	+1.03	+.15	+.88	+1.13	-1.37	-2.11	+.28	+1.36	+1.19	-.45	-.08	-
	WIND	B1708	2519	3888	2734	2650	1766	885	2930	830	701	1416	1433	23460
Jornada Exp. Range	EVAP	2.81	3.85	6.60	8.62	11.15	12.95	10.41	10.07	8.56	5.96	3.01	1.78	85.77
	DEP	+.29	-.34	-.68	-1.60	-1.91	-1.48	-2.28	-.61	-.00	-.15	-.66	-.54	-9.96
	WIND	837	961	1756	1203	1130	1089	641	660	542	286	483	362	8577
Lake Avalon	EVAP	6.26	6.87	10.62	10.95	15.18	17.58	13.02	14.92	9.93	8.09	4.10	3.91	121.43
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2853	2982	4434	3105	3438	3404	2476	2011	1716	1547	1986	1868	31820
Narrows	EVAP	3.73	4.72	7.47	9.05	13.03	14.80	12.61	13.02	10.24	7.62	4.52	2.27	103.08
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1658	2002	2893	1760	2076	1739	1677	1410	870	964	1560	479	19088
Portales TWIN	EVAP	-	5.20	7.60	B9.27	11.38	14.34	B12.58	B11.72	8.46	6.45	-	-	-
	DEP	-	+1.54	+.22	+.18	+.69	+1.77	+.44	+.17	+.10	+.30	-	-	-
	WIND	2624	3311	4396	B3348	3139	3157	2337	1764	1615	1614	2465	2600	32370
Santa Fe	EVAP	-	-	-	-	9.34	B12.52	10.58	-	8.99	B7.37	-	-	-
	DEP	-	-	-	-	+.69	+2.22	+1.66	-	+2.60	+2.81	-	-	-
	WIND	-	-	-	-	2266	1825	1755	-	1989	B2191	-	-	-
Santa Rita (g)	EVAP	-	-	-	-	B11.12	11.84	9.92	B8.59	B11.15	8.78	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Tucumcarri 3NE (h)	EVAP	-	-	-	B7.21	10.18	18.02	14.51	13.17	9.63	-	-	-	-
	DEP	-	-	-	-.50	+.89	+7.32	+3.62	+3.58	+2.20	-	-	-	-
	WIND	3959	3936	5017	3525	3482	4257	3378	2405	2356	2011	2673	2350	39349

See reference notes at end of table.



# TOTAL EVAPORATION AND WIND MOVEMENT

Table 7

YEAR 1952

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
<b>NEW YORK</b>														
Alcove Dam	EVAP	-	-	-	-	85.24	85.16	6.34	5.48	83.34	1.97	-	-	-
	DEP	-	-	-	-	+ .75	+ .33	+ .43	+ .83	- .23	- .22	-	-	-
	WIND	-	-	-	-	8997	795	702	927	786	1211	-	-	-
Boonville 3SE	EVAP	-	-	-	-	84.78	6.39	87.26	5.23	3.77	2.27	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	3251	2162	1867	1514	1586	3057	-	-	-
Ithaca Cornell Univ.	EVAP	-	-	-	-	83.42	5.26	87.15	4.83	3.88	2.13	-	-	-
	DEP	-	-	-	-	- .87	+ .10	+ 1.28	+ .11	+ .53	- .01	-	-	-
	WIND	-	-	-	-	2673	1913	2282	2298	2484	2548	-	-	-
New York Central Park	EVAP	-	-	-	4.11	86.38	7.29	8.40	5.43	4.25	3.16	-	-	-
	DEP	-	-	-	-	+ 1.34	+ 1.56	+ 1.52	- .30	-	+ .02	-	-	-
	WIND	-	-	-	1208	1007	728	616	581	440	775	-	-	-
<b>NORTH CAROLINA</b>														
Beetree Dam (i)	EVAP	1.28	1.59	2.80	3.81	5.40	5.99	5.82	4.19	3.50	2.83	1.92	0.89	40.02
	DEP	+ .18	+ .14	+ .05	- .43	- .14	+ .32	+ .52	- .79	- .44	- .24	- .09	- .26	- 1.18
	WIND	1117	998	1241	1044	718	497	494	427	452	647	969	961	9565
Chapel Hill 2W	EVAP	-	-	-	-	-	87.17	88.00	85.71	84.30	83.48	82.20	81.53	-
	DEP	-	-	-	-	-	+ 1.62	+ 2.51	+ .85	+ .37	+ .88	+ .65	+ .33	-
	WIND	-	-	-	-	-	1035	1042	980	900	916	1110	1047	-
Coweeta Exp. Station (j)	EVAP	1.47	82.03	83.10	83.90	3.95	84.20	5.63	3.72	3.36	3.17	82.18	81.17	37.88
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	1131	1599	1444	934	539	674	454	423	819	1024	938	-
Lake Michie (k)	EVAP	2.59	2.88	3.60	3.96	4.85	6.81	7.70	86.36	4.81	3.52	2.75	2.19	52.02
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	1852	1664	1028	1845	-
Maysville 6SW	EVAP	1.96	82.61	84.34	86.00	87.23	8.49	87.81	86.20	84.50	3.05	82.27	1.35	55.81
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1509	1559	1905	1706	1354	1002	948	1014	872	772	765	824	14230
Murphy	EVAP	1.39	1.37	3.56	4.07	5.41	5.96	6.36	5.08	3.83	2.86	1.50	1.10	42.49
	DEP	+ .36	- .12	+ .56	- .25	- .08	+ .12	+ .62	+ .01	- .27	- .03	- .14	+ .20	+ .89
	WIND	393	351	662	545	278	108	181	80	70	155	307	341	3471
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	49.8 34.3	-
<b>NORTH DAKOTA</b>														
Bowbells SE	EVAP	-	-	-	6.74	6.78	87.53	7.32	87.09	4.56	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	3144	2601	3156	2304	2022	2622	-	-	-	-
Devils Lake WB City	EVAP	-	-	-	5.63	6.60	7.07	8.52	6.61	4.97	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	1809	1547	81996	1551	1331	1556	-	-	-	-
Dickinson Exp. Sta. (f)	EVAP	-	-	-	-	5.87	7.66	7.88	6.89	84.60	-	-	-	-
	DEP	-	-	-	-	+ .26	+ 1.57	- .03	- .36	- .38	-	-	-	-
	WIND	-	-	-	-	3560	3825	3155	2900	2740	-	-	-	-
Edgeley Exp. Farm	EVAP	-	-	-	84.56	5.97	7.19	9.88	9.09	87.17	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	82129	1785	1290	1959	1714	82159	-	-	-	-
Mandan Exp. Station (f)	EVAP	-	-	-	-	5.33	6.51	6.89	6.12	4.40	-	-	-	-
	DEP	-	-	-	-	- .01	+ .58	- .44	- .45	- .11	-	-	-	-
	WIND	-	-	-	-	3479	3784	3116	2953	2745	-	-	-	-
Riverdale	EVAP	-	-	-	-	8.76	9.76	9.40	9.06	5.95	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	3910	4055	2841	3236	2943	-	-	-	-
<b>OHIO</b>														
Charles Mill Dam	EVAP	-	-	-	83.42	4.64	8.05	87.67	5.71	4.61	3.00	-	-	-
	DEP	-	-	-	- .29	- .26	+ 2.01	+ 1.04	- .36	+ .10	+ .16	-	-	-
	WIND	-	-	-	82382	1812	1544	1446	1054	1071	1963	-	-	-
Columbus Ohio State U.	EVAP	-	-	-	-	83.83	83.85	84.78	84.33	-	2.49	-	-	-
	DEP	-	-	-	-	- .62	- 1.27	- .93	- .47	+ .39	-	-	-	-
	WIND	-	-	-	-	198	230	231	79	-	182	-	-	-
Dayton	EVAP	-	-	-	84.63	5.11	7.86	7.80	5.89	4.45	2.72	-	-	-
	DEP	-	-	-	+ .73	- .26	+ 1.44	+ .98	- .06	+ .11	+ .25	-	-	-
	WIND	-	-	-	81966	1690	1341	1279	955	-	-	-	-	-
Senecaville Dam	EVAP	-	-	-	83.47	4.89	7.58	7.30	5.64	4.15	82.89	-	-	-
	DEP	-	-	-	- .79	- .60	+ 1.33	+ .75	- .20	- .43	+ .03	-	-	-
	WIND	-	-	-	2571	2088	1610	1562	1371	81231	1766	-	-	-
Wooster Exp. Farm	EVAP	-	-	-	83.83	5.05	7.68	8.02	85.81	9.76	82.62	-	-	-
	DEP	-	-	-	+ .50	+ .58	+ 2.25	+ 1.82	+ .45	+ 5.98	+ .48	-	-	-
	WIND	-	-	-	2721	2184	1677	1677	81261	84.24	81843	-	-	-
<b>OKLAHOMA</b>														
Altus Dam	EVAP	3.25	3.80	5.73	87.65	9.74	13.99	12.17	813.73	89.87	87.32	84.33	82.27	93.85
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2658	2713	3142	2540	2413	2687	2011	2017	81502	81916	2205	2305	28109
Canton Dam	EVAP	-	-	-	7.36	10.01	15.88	15.50	13.99	11.39	9.42	85.83	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	3946	3377	4340	3346	3062	2271	2896	3593	-	-
Fort Gibson Dam	EVAP	2.41	2.51	3.98	4.79	7.31	10.95	10.20	9.46	7.97	6.55	83.88	81.37	71.38
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2101	1621	1970	1511	1362	1866	1341	1160	1014	1308	1504	1167	17925
Fort Supply Dam	EVAP	-	-	84.57	87.30	810.23	815.08	14.86	812.85	11.28	8.49	-	-	-
	DEP	-	-	-	-	+ .71	+ 3.93	+ 3.17	+ 1.73	+ 2.38	+ 2.53	-	-	-
	WIND	-	-	5018	3995	3704	5131	4386	3630	3107	2971	-	-	-
Goodwell	EVAP	-	-	-	-	810.41	18.10	817.05	14.39	11.55	7.55	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	3285	5193	5158	3534	2162	1440	-	-	-
Grand River Dam	EVAP	-	-	5.03	85.64	88.46	13.97	13.01	810.55	89.61	8.16	84.43	-	-
	DEP	-	-	+ .60	- .70	+ 1.25	+ 5.58	+ 3.46	+ 1.57	+ 2.83	+ 3.92	+ 1.68	-	-
	WIND	-	-	3352	1983	1955	2947	2088	1503	2606	2735	-	-	-
Great Salt Plains Dam	EVAP	-	82.81	4.02	5.40	8.30	814.52	13.29	810.92	9.34	6.53	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	3076	4504	3659	3040	4071	3284	3005	3260	2661	-	-	-
Heyburn Dam	EVAP	-	2.26	-	86.34	88.25	89.33	-	88.87	86.84	5.65	-	81.41	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	1999	-	2043	1459	1306	-	994	840	1074	-	1344	-

See reference notes at end of table.



# TOTAL EVAPORATION AND WIND MOVEMENT

Table 7

YEAR 1952

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
OKLAHOMA (Cont'd.)														
Hulah Dam	EVAP	81.99	2.60	84.03	85.28	8.31	810.74	810.49	9.89	88.76	7.51	84.04	81.84	75.48
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2926	2654	83740	2660	2294	2360	1712	1738	1470	1950	2260	1950	27714
Lake Overholser	EVAP	-	-	-	5.16	89.32	811.15	9.83	-	8.05	86.51	84.19	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	3160	2773	2867	1714	-	1597	1846	-	-	-
Norman University	EVAP	-	-	-	5.14	87.97	10.51	9.79	9.85	87.74	85.57	83.30	-	-
	DEP	-	-	-	-.30	+1.37	+2.97	+1.88	+1.46	+1.04	+1.91	+1.88	-	-
	WIND	-	-	-	1477	1373	1709	1102	1108	738	938	1360	-	-
Stillwater	EVAP	-	-	-	85.56	86.91	12.64	11.19	-	8.87	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	2813	3197	3212	2369	-	1602	-	-	-	-
Tenkiller Ferry Dam	EVAP	2.20	2.20	84.45	85.39	87.21	8.83	8.86	8.05	7.33	85.38	83.08	1.40	64.38
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1662	1403	2113	1633	797	534	569	430	653	870	989	564	12217
Tipton	EVAP	3.69	3.88	6.01	87.09	811.37	16.78	813.98	15.05	10.71	9.08	85.33	82.37	105.34
	DEP	-	-	+3.32	-.30	+1.77	+5.52	+1.38	+3.21	+1.25	+2.94	+2.20	-	-
	WIND	-	-	-	84057	4298	5252	3481	3221	2357	2980	3181	2790	-
Wister Dam	EVAP	2.63	2.17	5.01	85.41	7.74	89.89	8.97	8.67	6.75	84.59	82.90	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2276	1738	2581	1880	1510	1259	1201	1239	1024	1211	1807	-	-
Woodward Field Sta. (f)	EVAP	-	-	-	-	7.52	11.99	12.02	10.01	9.07	-	-	-	-
	DEP	-	-	-	-	+1.17	+2.51	+1.46	+1.18	+1.67	-	-	-	-
	WIND	-	-	-	-	4675	7140	5745	4450	4170	-	-	-	-
OREGON														
Corvallis State College	EVAP	-	-	-	-	-	-	-	-	-	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	81809	-
Cottage Grove Dam	EVAP	-	-	-	-	5.73	4.46	9.00	6.75	4.73	82.46	-	-	-
	DEP	-	-	-	-	-	-1.09	+1.78	-1.04	-1.06	-	-	-	-
	WIND	-	-	-	-	1463	913	1130	990	664	387	-	-	-
Dorena Dam	EVAP	-	-	-	-	85.65	84.84	9.22	7.24	84.99	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	81912	1595	2165	1900	1430	-	-	-	-
Fern Ridge Dam	EVAP	.09	8.70	1.54	3.46	5.73	4.97	8.44	6.70	5.32	82.58	8.51	.30	40.34
	DEP	-	-	-	-	+3.36	-.89	-.14	-.56	+1.16	-	-	-	-
	WIND	1640	1304	2175	81399	1514	1586	1355	1283	1188	954	943	1315	16656
Hermiston 2S (f)	EVAP	-	-	-	84.56	5.80	5.89	8.22	87.04	84.23	2.70	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1251	1571	3965	3215	3393	3395	2494	2671	1570	1303	897	1722	27445
Madras 2N	EVAP	-	-	-	85.81	87.13	6.69	9.87	8.14	6.14	3.48	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	82432	2128	2019	1832	1713	1565	1146	-	-	-
Malheur Branch Exp. Sta.	EVAP	-	-	-	5.85	6.39	7.15	9.28	8.97	5.01	2.78	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	1475	727	584	509	407	8286	274	-	-	-
Medford Exp. Station	EVAP	-	.69	1.69	4.00	85.53	85.03	8.42	7.17	4.04	2.07	-	8.58	-
	DEP	-	-.43	-.71	+1.14	-.10	-1.73	-.40	-.26	-.68	+1.10	-	+1.07	-
	WIND	490	319	690	490	358	307	280	201	139	92	141	8608	4115
Odell Lake-Land Pan	EVAP	-	-	-	-	-	2.92	6.25	3.70	1.95	.87	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	497	489	539	611	560	-	-	-
	MAX	-	-	-	-	-	69.1	88.3	75.7	61.3	49.2	-	-	-
	MIN	-	-	-	-	-	43.5	51.3	48.0	42.9	35.4	-	-	-
Odell Lake-Water Pan (1)	EVAP	-	-	-	-	-	2.27	4.92	4.52	3.32	3.06	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	817	1061	897	940	1038	-	-	-
	PAN	-	-	-	-	56.4	60.1	71.9	70.1	65.7	59.6	-	-	-
	LAKE	-	-	-	-	47.5	52.7	61.9	65.4	62.6	58.1	-	-	-
Warm Springs Res.	EVAP	-	-	-	-	86.00	86.66	88.84	9.60	5.84	4.00	-	-	-
	DEP	-	-	-	-	-1.96	-2.41	-3.62	-1.27	-.87	+1.39	-	-	-
	WIND	1557	1316	1912	2239	82075	82053	2042	2007	81573	8937	766	1246	19723
Wickiup Dam	EVAP	-	-	-	-	6.41	5.88	89.90	7.89	5.19	-	-	-	-
	DEP	-	-	-	-	+1.64	-.62	+1.77	+1.65	-.14	-	-	-	-
	WIND	-	-	-	-	2100	81883	1545	1239	936	777	1199	2668	-
PENNSYLVANIA														
Confluence ISW Dam	EVAP	-	-	-	82.97	84.93	6.77	6.68	4.93	3.84	2.60	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	81993	2011	1475	1415	1380	1317	1863	-	-	-
Ford City 4S Dam	EVAP	-	-	-	84.24	6.37	7.26	5.44	4.30	-	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	81796	1329	1313	953	980	-	-	-	-	-
Hawley 1S Dam	EVAP	-	-	-	-	4.42	5.78	86.77	4.39	83.44	-	-	-	-
	DEP	-	-	-	-	-1.08	-.08	+1.24	-1.26	-.61	-	-	-	-
	WIND	-	-	-	-	3068	2220	2231	1711	1574	-	-	-	-
Jamestown 2NW	EVAP	-	-	-	-	3.50	5.75	6.86	85.19	3.31	1.96	-	-	-
	DEP	-	-	-	-	-.63	+1.71	+1.04	+1.50	-.05	-	-	-	-
	WIND	-	-	-	-	1545	1159	1136	800	730	1164	-	-	-
Landisville	EVAP	-	-	-	-	-	-	87.74	85.17	84.41	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	974	1011	924	-	-	-	-
Neffs Mills 4NE	EVAP	-	-	-	-	81.93	86.85	6.82	84.84	3.61	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	81614	981	744	545	448	-	-	-	-
Pimple Hill	EVAP	-	-	-	-	86.73	88.23	88.02	85.45	84.63	3.07	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	4781	3291	2535	2420	2383	4015	-	-	-
SOUTH CAROLINA														
Clark Hill Dam	EVAP	-	-	-	-	-	-	-	-	85.70	4.23	82.82	82.50	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	1481	1168	1228	1328	-

See reference notes at end of table.



Table 7

## TOTAL EVAPORATION AND WIND MOVEMENT

YEAR 1952

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
SOUTH CAROLINA (Cont'd.)														
Clemson College	EVAP	B2.17	B2.90	B4.65	B5.40	6.30	B7.58	-	-	-	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1675	1655	1779	1648	1203	819	-	-	-	-	-	-	-
Union TSW	EVAP	1.98	B2.16	4.08	5.14	6.75	7.74	B8.53	5.28	4.32	3.36	2.06	1.28	52.68
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1512	1658	2049	1680	1292	927	1205	1082	1244	1214	1005	1018	15886
SOUTH DAKOTA														
Angostura Dam	EVAP	-	-	-	B6.57	7.03	9.35	11.13	B10.03	B8.01	4.41	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	B1760	1851	1771	1863	B1558	B1101	974	-	-	-
Deerfield Dam	EVAP	-	-	-	-	B4.48	7.85	8.29	6.26	5.61	2.91	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	1618	1863	1668	1382	1388	1351	-	-	-
Newell 3NW (f)	EVAP	-	-	-	B4.67	5.43	7.30	8.44	7.52	5.91	-	-	-	-
	DEP	-	-	-	+ .64	- .05	+ .85	+ .62	+ .66	+ .96	-	-	-	-
	WIND	-	-	-	3599	3221	3482	3099	2970	2676	-	-	-	-
Pickstown	EVAP	-	-	-	-	-	-	-	7.31	9.05	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	2720	3010	-	-	-	-
Redfield 6E	EVAP	-	-	-	-	B7.54	B8.75	B8.14	B7.22	B6.13	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	3468	3226	2572	2693	3635	-	-	-	-
Shadehill Dam	EVAP	-	-	-	-	-	B12.77	B11.42	B10.60	7.51	5.05	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	3040	1580	1924	2876	3726	-	-	-
TENNESSEE														
Center Hill Dam	EVAP	B2.11	B1.84	4.09	4.59	6.52	B8.40	B9.10	7.93	5.26	3.50	2.40	B1.45	57.19
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1774	976	1815	1523	1192	934	1183	1079	897	1001	1380	1503	15257
Jefferson City Evap.	EVAP	1.06	1.41	2.95	3.78	5.16	6.42	7.02	4.27	4.12	2.59	1.12	.76	40.66
	DEP	+ .01	- .21	- .22	- .73	- .54	- .15	+ .71	- .96	- .14	- .12	- .37	- .05	- 2.77
	WIND	576	566	771	628	320	253	220	76	146	242	268	417	4483
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
Neptune	EVAP	1.39	1.88	B3.22	3.49	5.39	7.17	7.36	B6.21	B4.82	3.23	B2.42	B1.44	48.02
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1066	755	1446	1028	722	473	597	632	573	611	852	984	9739
Paris	EVAP	1.29	1.98	3.66	4.20	6.08	9.23	8.22	6.74	5.17	3.55	2.84	1.41	54.37
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	772	598	1412	1013	634	586	457	338	245	438	888	969	8350
	MAX MIN	-	-	-	-	-	-	-	-	-	-	-	-	-
TEXAS														
Austin WB Airport	EVAP	3.83	4.75	5.33	B7.24	8.29	9.02	9.93	11.92	7.79	7.17	B4.50	2.63	82.40
	DEP	+1.49	+1.64	+ .36	+1.26	+1.22	+ .83	+ .83	+2.84	+1.11	+1.97	+1.30	+ .25	+15.10
	WIND	3271	3298	2819	2750	2723	1821	1744	1970	1193	1869	2495	2088	28041
Angleton 3NE (f)	EVAP	-	-	-	-	-	-	-	-	-	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Balmorhea Exp. Pan	EVAP	3.60	4.86	7.51	8.44	10.16	10.26	8.86	9.75	7.48	5.97	3.43	-	-
	DEP	+1.71	+2.08	+2.55	+2.20	+2.39	+2.12	+ .89	+2.07	+2.14	+2.01	+ .53	-	-
	WIND	2016	2940	4153	3125	2758	2404	1578	1221	1204	1057	1393	-	-
Beaumont Exp. Farm	EVAP	B3.11	B3.44	5.53	B7.80	B7.22	8.30	B6.92	B8.72	B6.98	B6.53	B4.93	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	B3133	2820	2875	2567	B2460	1700	1433	1493	1444	1316	2203	-	-
Beeville (f)	EVAP	3.23	3.81	5.52	5.83	8.41	7.03	7.17	8.64	5.00	5.07	2.85	2.40	64.96
	DEP	+ .71	+1.22	+ .96	+ .87	+2.11	+ .30	- .04	+1.51	- .29	+ .68	- .45	- .11	+7.47
	WIND	5588	4847	5700	5529	4898	3152	-	-	2674	2793	4388	3804	-
Buchanan Dam	EVAP	3.91	5.13	6.16	B6.86	B8.86	10.33	10.67	13.74	B8.11	6.12	B3.77	B2.76	86.54
	DEP	-	-	+ .38	- .65	+ .55	+ .20	-	-	-	-	-	-	-
	WIND	2318	3200	3308	2277	1835	2608	B2259	2598	1349	1493	B2079	B1734	27058
Del Rio WB Airport	EVAP	3.85	5.36	6.54	8.07	B9.98	14.34	15.67	17.12	12.21	9.93	4.64	3.82	107.68
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1053	1024	1578	1571	3066	3891	3416	2654	2398	2374	2728	2261	28014
Denison Dam	EVAP	3.42	B4.04	5.97	B6.14	10.38	12.36	11.50	12.12	7.42	6.85	B4.71	2.07	86.98
	DEP	+1.14	+1.03	+ .67	-1.01	+2.61	+2.86	+1.39	+1.83	- .08	+1.69	+ .96	- .35	+12.74
	WIND	4195	3444	4014	3457	3465	4145	2562	2315	990	2247	3088	2713	36633
Denton Exp. Station (f)	EVAP	2.47	2.88	3.77	B5.05	B6.39	7.44	B7.98	B8.43	6.88	5.88	B3.08	-	-
	DEP	+ .77	+ .62	+ .17	+ .55	+1.20	+ .78	+ .63	+ .96	+1.71	+2.33	+ .43	-	-
	WIND	2359	3973	3433	3592	4127	4511	4074	3685	3250	3407	4264	-	-
Dilley	EVAP	3.82	5.06	6.95	7.54	10.09	10.56	11.98	13.92	8.92	7.55	4.05	B3.00	93.44
	DEP	+1.07	+1.60	+ .88	+ .06	+1.83	+ .73	+1.26	+3.40	+1.29	+1.70	+ .41	+ .38	+14.60
	WIND	1072	1341	1876	1721	1715	1419	1386	1630	940	930	1366	1145	16541
Fort Stockton	EVAP	-	-	B9.27	11.46	14.33	14.87	13.47	B13.66	B10.03	B9.06	B4.77	B3.54	-
	DEP	-	-	-	+ .42	+1.61	+1.16	+ .56	+2.16	+ .77	+2.47	+ .14	- .23	-
	WIND	-	-	3695	3444	2515	3675	2189	2011	1418	B1468	B1874	B1652	-
Iowa Park Exp. Station	EVAP	1.89	2.54	3.80	4.57	6.20	-	-	11.50	8.01	6.15	2.98	1.78	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2673	2922	3890	3186	2856	-	-	2255	1431	1709	1594	1195	-
Lake Kickapoo	EVAP	-	-	7.32	9.47	12.41	16.07	14.43	B15.89	11.46	9.21	B5.63	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	5455	4287	4136	4744	3614	3618	2703	3217	3878	-	-
Laredo WB Airport	EVAP	5.49	6.85	B9.44	10.13	14.02	14.31	15.01	17.55	10.89	9.38	5.37	4.00	122.44
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2735	2820	3282	3823	4288	4870	4480	4889	2514	2609	3134	2511	41955
Lubbock (f)	EVAP	2.46	3.74	5.85	6.57	8.54	9.96	8.41	9.37	6.72	5.72	B3.36	B2.21	72.91
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	3082	3731	5328	4120	4186	6165	3378	2389	2081	2334	2245	2949	41988
Mansfield Dam	EVAP	B3.37	4.07	5.16	6.05	B8.61	9.64	9.90	13.32	8.00	B6.47	B4.10	2.35	81.04
	DEP	-	-	-	-	-	+ .31	-	+3.36	+ .72	-	+ .58	-	-
	WIND	2042	2178	2510	2200	2361	2280	1544	1937	1360	1358	2050	1367	23187

See reference notes at end of table.



Table 7

## TOTAL EVAPORATION AND WIND MOVEMENT

YEAR 1952

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
TEXAS (Cont'd.)														
Red Bluff Dam	EVAP	85.29	6.55	89.79	810.16	13.89	14.26	12.38	14.42	-	7.18	3.84	3.53	-
	DEP	+2.10	+1.61	+1.19	-.91	+.45	-.18	+.98	+1.63	-	+.85	-.79	+.21	-
	WIND	82658	3485	4739	3022	3068	2402	2153	1859	-	1586	2139	2255	-
Spur (m)	EVAP	82.66	4.06	5.86	86.72	8.62	12.56	89.17	810.01	6.79	5.73	3.50	82.54	78.22
	DEP	+.46	+1.26	+1.15	+.24	+1.05	+4.09	+1.18	+1.99	+.78	+1.85	+.19	+.53	+14.77
	WIND	-	-	8006	6815	7641	8399	5304	4499	4062	4586	5431	4752	-
Substation 14	EVAP	-	-	-	8.67	-	-	-	-	-	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	3320	-	-	-	-	-	-	-	-	-
Weslaco Exp. Station (f)	EVAP	2.96	83.48	84.41	85.67	86.37	6.00	6.40	87.87	86.03	5.01	2.88	2.07	59.15
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	3517	2901	3534	3312	3172	2269	1686	2511	1332	1307	2274	1861	29676
William Harris Res.	EVAP	2.66	83.31	5.19	85.72	87.21	8.10	87.31	7.74	6.76	5.75	83.25	2.25	65.25
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1684	1571	1915	1544	1190	1345	981	939	1191	1020	2120	1720	17220
Winter Haven Exp. Sta.(n)	EVAP	3.28	4.76	5.94	7.07	8.71	10.35	12.13	13.40	10.10	7.70	4.01	2.47	89.92
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	1534	1917	2432	2710	2513	2833	2321	2417	1364	903	1374	920	23238
Ysleta	EVAP	83.89	4.70	7.83	10.00	12.58	13.58	-	811.77	9.52	6.91	3.31	82.51	-
	DEP	+.77	+.08	-.62	-1.09	-.82	-.12	-	+1.13	+.99	+.72	-.55	-.48	-
	WIND	1567	2202	3291	2954	2412	1945	-	1401	1325	953	1330	1410	-
UTAH														
Bear River Refuge	EVAP	-	-	-	-	-	9.21	10.72	9.37	6.54	3.78	-	-	-
	DEP	-	-	-	-	-	-1.30	-1.26	-1.10	-.26	-	-	-	-
	WIND	1467	1102	2015	1783	2273	2087	1765	1709	1030	569	860	928	17588
East Portal	EVAP	-	-	-	-	-	87.79	86.96	7.06	5.51	4.30	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	1890	1259	1559	1530	1460	-	-	-
Greenriver Airway	EVAP	-	-	-	-	88.13	9.11	88.60	7.08	5.60	3.90	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	864	852	292	260	296	146	-	-	-
Logan USAC Exp. Station	EVAP	-	-	-	-	7.29	9.03	9.19	8.17	6.32	3.88	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	1799	1636	966	1266	1049	573	-	-	-
Moon Lake	EVAP	-	-	-	-	-	-	87.01	5.95	85.26	-	-	-	-
	DEP	-	-	-	-	-	-	-1.09	-.96	-	-	-	-	-
	WIND	-	-	-	-	-	-	1441	1481	1310	-	-	-	-
Piute Dam	EVAP	-	-	-	-	-	10.41	9.76	8.05	6.46	85.03	-	-	-
	DEP	-	-	-	-	-	-1.00	-1.33	-1.19	+.19	-	-	-	-
	WIND	-	-	-	-	-	2068	1157	1079	967	8746	-	-	-
Provo Radio KOVO	EVAP	-	-	-	-	7.63	8.48	8.88	7.85	6.56	84.08	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	82020	1850	1653	1243	1229	1240	8644	-	-	-
Scofield Dam	EVAP	-	-	-	-	-	-	17.02	6.68	5.90	4.66	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	V4092	1484	1448	1415	1447	-	-
Utah Lake Lehi	EVAP	-	-	1.87	5.30	8.65	10.46	9.80	9.15	7.59	4.56	-	-	-
	DEP	-	-	-1.33	-.55	-.09	+.31	-1.25	-.57	+.41	+.55	-	-	-
	WIND	2277	1778	2487	2400	2851	2878	1944	2228	1969	1108	1757	1697	25374
Vernal Airport	EVAP	-	-	-	-	-	7.33	7.34	5.97	85.10	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	81192	479	673	592	-	-	-	-
VIRGINIA														
Charlottesville 1W	EVAP	-	-	-	4.41	6.56	7.83	7.82	85.05	84.21	3.53	81.69	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	1970	1430	1025	983	883	786	1054	943	-	-
	MAX MIN	-	-	-	-	-	-	-	-	82.9	68.2	64.9	-	-
Holland 1E	EVAP	-	-	-	85.40	86.86	8.57	8.30	6.85	84.00	83.17	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	82049	1830	935	969	1014	791	936	-	-	-
WASHINGTON														
Bumping Lake	EVAP	-	-	-	-	-	-	87.49	6.21	4.16	82.42	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	81060	1007	761	523	-	-	-
Lake Kachess	EVAP	-	-	-	-	-	84.33	7.17	5.60	4.25	-	-	-	-
	DEP	-	-	-	-	-	-.45	+.76	+.56	+.54	-	-	-	-
	WIND	-	-	-	-	-	81808	1659	1530	1294	-	-	-	-
Lind 3NE (o)	EVAP	-	-	-	87.13	8.31	89.42	13.13	10.45	7.43	-	-	-	-
	DEP	-	-	-	+2.38	+1.25	+1.56	+2.35	+.88	+1.59	-	-	-	-
	WIND	2217	1985	2929	2498	1735	2160	1507	1513	1261	876	975	1805	21461
Moses Lake 2E	EVAP	-	-	-	85.87	6.88	8.84	9.39	7.84	5.17	2.53	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	81315	1193	1996	-	578	-	-	-	-	-
Othello 5E	EVAP	-	-	-	7.64	8.81	9.98	13.60	810.69	7.96	4.07	-	-	-
	DEP	-	-	-	+2.11	+1.26	+.98	+.99	+.09	+1.08	+.87	-	-	-
	WIND	1460	1500	2771	2525	2754	2943	2608	2599	2124	1486	1038	1546	25354
Prosser 4NE (o)	EVAP	-	-	82.74	4.67	6.04	86.31	7.76	6.72	4.41	2.35	-	-	-
	DEP	-	-	+.30	+.52	+.49	-.29	-.12	+.02	+.34	-.04	-	-	-
	WIND	1551	1560	2760	2300	2036	1884	1498	1439	1265	982	780	1563	19618
Quincy 4S	EVAP	-	-	-	86.59	8.20	8.89	11.32	10.78	7.28	3.88	-	-	-
	DEP	-	-	-	+.68	-.19	-1.01	-2.36	-.70	+.34	+.34	-	-	-
	WIND	1645	1840	82478	2642	2370	2482	2335	2205	1802	1220	832	1193	23044
Rimrock Tieton Dam	EVAP	-	-	-	-	6.42	6.85	10.06	8.21	4.92	2.38	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	2292	2449	2110	1888	1383	892	-	-	-
Seattle Maple Leaf Res.	EVAP	-	.83	1.94	3.86	4.91	4.82	7.16	5.43	4.31	2.26	.87	.62	-
	DEP	-	-.06	+.18	+.95	+.51	+.05	+.88	+.46	+1.06	+.71	+.22	+.09	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Walla Walla 3W	EVAP	-	-	-	85.98	6.30	8.11	10.72	9.25	5.20	3.45	-	-	-
	DEP	-	-	-	+1.68	+.12	+.53	+.18	+.09	-.07	+.90	-	-	-
	WIND	-	-	-	81911	1230	1613	1294	1331	709	709	-	-	-

See reference notes at end of table.



# TOTAL EVAPORATION AND WIND MOVEMENT

YEAR 1952

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
WASHINGTON (Cont'd.) Wind River	EVAP	-	-	-	3.32	4.72	4.78	7.14	B6.20	4.04	2.58	-	-	-
	DEP	-	-	-	+1.12	-1.14	-1.77	+1.07	+1.38	+1.54	+1.01	-	-	-
	WIND	-	-	-	796	853	707	814	730	426	512	-	-	-
WEST VIRGINIA Bluestone Dam	EVAP	-	-	-	-	-	-	-	-	-	-	B1.17	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	B1456	-	-
Clarksburg 1	EVAP	-	-	-	2.89	B4.43	6.22	5.42	4.42	2.50	2.03	-	-	-
	DEP	-	-	-	-1.85	-1.46	+1.62	-1.63	-1.43	-1.08	-1.12	-	-	-
	WIND	-	-	-	2796	2170	1755	1569	1248	1146	1793	-	-	-
Hogsett Gallipolis Dam	EVAP	-	-	-	-	-	-	-	B6.41	B4.19	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	1214	973	-	-	-	-
Wardensville RM Farm	EVAP	-	-	-	B3.81	4.94	B6.94	B7.17	B4.89	B3.53	B3.25	-	-	-
	DEP	-	-	-	-	-1.59	+1.06	+1.75	-1.59	-1.80	+1.18	-	-	-
	WIND	-	-	-	B1278	1105	B726	416	354	246	B634	-	-	-
WISCONSIN Marshfield Exp. Farm	EVAP	-	-	-	-	-	5.50	7.41	5.52	B3.82	-	-	-	-
	DEP	-	-	-	-	-	-1.17	+1.97	-1.60	-1.44	-	-	-	-
	WIND	-	-	-	-	-	1402	2063	1637	1841	-	-	-	-
Rainbow Reservoir	EVAP	-	-	-	-	B4.67	B5.21	B5.21	4.02	3.22	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	2000	1777	1531	1458	1574	-	-	-	-
Trempealeau Dam 6	EVAP	-	-	-	-	B6.12	B7.06	8.86	B6.41	5.77	-	-	-	-
	DEP	-	-	-	-	-1.03	+1.17	+1.11	-1.42	+1.79	-	-	-	-
	WIND	-	-	-	-	3814	3281	3185	2334	3230	-	-	-	-
WYOMING Archer (f)	EVAP	-	-	-	B3.35	B4.92	B6.99	B7.95	7.15	6.15	-	-	-	-
	DEP	-	-	-	-1.16	-1.77	+1.21	+1.14	+1.16	+1.56	-	-	-	-
	WIND	7268	7968	6689	3704	2930	2398	2674	2785	2409	3956	5098	7036	54915
Boysen Dam	EVAP	-	-	-	B6.49	7.69	11.80	12.41	10.25	7.88	4.28	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	B2735	2662	2846	2830	2360	1988	1902	1975	1271	-
Cheyenne Hort Fld. Sta.	EVAP	-	-	-	-	-	-	-	-	-	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	4512	4290	4352	3672	B3491	3181	-	B2516	2525	2786	B3193	4265	-
Farson	EVAP	-	-	-	-	-	B14.70	B13.97	B8.30	5.99	B5.23	-	-	-
	DEP	-	-	-	-	-	3262	2483	1932	1781	B1473	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Heart Mountain	EVAP	-	-	-	-	-	B8.38	11.91	10.04	8.58	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	2610	2570	3010	B3652	3435	3020	-	-	-	-	-	-	-
Keyhole Dam	EVAP	-	-	-	6.57	B7.03	10.39	11.21	10.05	7.82	4.62	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	4724	3322	4063	3800	2220	2430	2128	2081	1771	1630	2235	3135	33539
Morton INW	EVAP	-	-	-	-	B4.50	7.57	7.70	6.00	B6.01	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	1013	1308	1239	1271	1487	-	-	-	-
Pathfinder Dam	EVAP	-	-	-	-	B5.92	8.39	9.65	8.49	6.33	4.20	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	2787	3157	3049	3269	2468	2499	-	-	-
(f) Sheridan Fld. Sta. ONE	EVAP	-	-	-	B3.91	B4.58	7.88	B8.00	B7.31	5.30	-	-	-	-
	DEP	-	-	-	+1.18	-1.44	+1.59	-1.05	-1.06	+1.20	-	-	-	-
	WIND	-	2129	2218	3178	2766	3132	2142	1396	1531	1724	2049	1855	-
Whalen Dam	EVAP	-	-	-	B6.37	6.12	10.34	11.35	9.08	6.79	B4.62	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	B3217	-	-	2041	1864	1524	1535	-	-	-
ALASKA Matanuska Valley 14	EVAP	-	-	-	-	-	B4.45	-	B2.98	B1.64	-	-	-	-
	DEP	-	-	-	-	-	+1.07	-	-1.04	-1.26	-	-	-	-
	WIND	-	-	-	-	-	1875	1084	1058	1040	-	-	-	-
University Exp. Station	EVAP	-	-	-	-	2.96	4.50	3.46	2.64	1.17	-	-	-	-
	DEP	-	-	-	-	-	-1.02	-1.95	+1.01	-1.09	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
VIRGIN ISLANDS **St. Croix	EVAP	-	4.68	7.08	6.85	7.51	7.16	7.58	6.78	5.58	-	3.31	4.24	-

- (a) Evaporation measured in 3-foot square sunken pan, depth of 36 inches, and filled to a depth of approximately 34 inches.
- (b) Evaporation measured in 3-foot square sunken pan, depth of 18 inches, and filled to a depth of approximately 14 inches.
- (c) Evaporation measured in 4-foot circular sunken screened pan, depth of 10 inches and filled to a depth of approximately 7 inches.
- (d) Evaporation measured in 68-inch circular sunken pan, depth of 24-1/2 inches and filled to a depth of approximately 23-1/2 inches.
- (e) Evaporation measured in 6-foot circular B.P.I. sunken pan, depth of 22 inches and filled to a depth of approximately 20 inches.
- (f) Evaporation measured in 6-foot circular B.P.I. sunken pan, depth of 24 inches and filled to a depth of approximately 20 inches.
- (g) Evaporation measured in 3-foot square pan and mounted on a 10-foot platform.
- (h) Until June 1, 1952, evaporation measured in 6-foot circular B.P.I. sunken pan, depth of 24 inches and filled to a depth of approximately 20 inches. On June 1, 1952, a Class A pan was installed.
- (i) Evaporation measured in 30-inch circular pan, depth of 10 inches, and filled to depth of approximately 8 inches.
- (j) Evaporation measured in 30-inch sunken circular pan, depth of 16 inches, and filled to depth of approximately 10 inches.
- (k) Evaporation measured in 4-foot circular floating pan, depth of 11 inches and filled to approximate depth of 8 inches.
- (l) Evaporation measured in 4-foot circular pan, depth of 36 inches, and rests on wooden raft and support in lake. There is no ventilation under the pan.
- (m) Evaporation measured in 54-inch circular sunken pan with depth of 24 inches.
- (n) Evaporation measured in 10-foot sunken pan, 3 feet in depth.
- (o) Evaporation measured in 4-foot circular sunken pan, depth of 24 inches, and filled to approximate depth of 22 inches.



# TOTAL EVAPORATION AND WIND MOVEMENT

Table 7

State and Station	January	February	March	April	May	June	July	August	September	October	November	December	Annual

(Reference Notes Continued)

B Adjusted to a full month.

\* Amount included in following measurement.

V Includes total for previous month.

\*\* This data is a correction for that which was printed in the United States Yearbook, 1943-1949, for the year 1946.

Evaporation is measured in a Class A circular pan 43 inches in diameter, 10 inches in depth and filled to an approximate depth of 8 inches. Evaporation measured in pans other than Class A will be indicated by reference note.

Malheur Branch Exp. Station, Oregon - Due to damage to the hook gage validity of certain evaporation measurements made at this station for the period 6-1-48 to date may be in error by plus or minus .10. The record should be used with caution.

MAX and MIN refer to extremes of temperatures of water in pan as recorded during the 24 hours ending at time of observation.

Odell Lake Water Pan, Oregon - temperatures listed following PAN and LAKE are the 5 p.m. temperatures of the water in the evaporation pan and the water in Odell Lake.

## RELOCATIONS

Pierce Ferry, Arizona - All equipment moved 16.5 miles south to Diamond Bar Ranch, Arizona . . . . June 30, 1952.

Grand Lake 4SSW, Colorado - All equipment has been moved two miles to a new location to be known and published as Grand Lake 6SSW, Colorado. Effective July 14, 1952.

Wolf Creek Dam, Kentucky - Station moved 0.7 mile east effective May 15, 1952.

Alzada TNW, Montana - Station moved approximately 1-1/2 miles east on May 1, 1952. Station will be published in the future as Alzada 6NW.

## NAME CHANGES

Lake Placid, Florida changed to Lake Placid 2SW, Florida.

Boonville, New York changed to Boonville 3SE, New York.

Heyburn Dam 4E, Oklahoma changed to Heyburn Dam, Oklahoma.

Provo Airport, Utah changed to Provo Radio KOVO, Utah.

## NEW STATIONS

Nogales 2N, Arizona - Established October 1, 1952.

De Beque, Colorado - Established December 1, 1951.

Bay Lake, Florida - Records furnished by the U. S. Geological Survey, published in Climatological Data beginning January 1952.

Vero Beach CAA Airport, Florida - Established March 1, 1952.

Allatoona Dam 2, Georgia - Established April 22, 1952.

Rochester, Massachusetts - Evaporation records began April 1952.

Dearborn, Michigan - Established August 8, 1952.

South Haven Exp. Farm, Michigan - Evaporation records began May 2, 1952.

Scott, Mississippi - Established November 1, 1952.

Lakeport 2, New Hampshire - Established May 8, 1952.

Lake Overholser, Oklahoma - Established March 19, 1952.

Madras 2N, Oregon - Established April 1, 1952.

Landisville, Pennsylvania - Established April 1, 1952.

Clark Hill Dam, S. C. - Established August 9, 1952.

Pickstown, S. Dak. - Established April 16, 1951.

Bluestone Dam, West Virginia - Established October 17, 1952.

Cottonwood 2E, S. Dak. - Established August 5, 1952.



# EXCESSIVE PRECIPITATION

(Excessive Short Duration Rainfall)

## YEAR 1952

This table contains statistics of maximum amounts of rainfall during the calendar year 1951. Data presented in this table are generally from stations equipped with tipping bucket recording gages. Stations are at City Office locations unless otherwise shown.

Published excessive precipitation data prior to 1896 consist of maximum amounts of rainfall in 5 and 10 minute periods, also in 1 and 24 hours.

Excessive precipitation data for the years 1896-1935 inclusive, generally present the accumulated amounts of precipitation for each 5, 10, or 20 minute intervals during storms in which the rate of fall equalled or exceeded .25 inch in any 5 minute period, or .30 in any 10 minute period, or .35 in any 15 minute period, etc., the tabulation beginning with the 5 minute period where the rate of .05 inch in 5 minutes began and continuing by 10 or 20 minute intervals up to 120 minutes. A detailed explanation of the method used may be found in the publications listed in the last paragraph of this explanation.

The present method, adopted with data for the calendar year 1936, gives the maximum fall of precipitation for the periods 5 to 180 minutes, the maximum amounts being taken for the periods in which the fall is greatest for the given time, and is tabulated to show maximum amounts for 5, 10, 15, 20, 30, 45, 60, 80, 100, 120, 150 and 180 minutes, even if the fall does not equal the excessive rate for some of the periods. (The 15 minute amount was not computed for 1936-1943 and the 150 minute amount was not computed for 1944 through 1948.)

The following Table A shows limits at which precipitation was considered excessive in this publication:

TABLE A

Duration (minutes)	Depth of precipitation (inches)	Duration (minutes)	Depth of precipitation (inches)
5	.25	60	.80
10	.30	80	1.00
15	.35	100	1.20
20	.40	120	1.40
30	.50	150	1.70
45	.65	180	2.00

This table is made up from the formula,  $A = t + 20$  where A is the accumulated depth in hundredths of inches and t is the time in minutes.

For the years 1936 through 1948 stations in North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, Arkansas, Louisiana, Texas, Oklahoma, and San Juan, P. R. used the limits shown in the following Table B:

TABLE B

Duration (minutes)	Depth of precipitation (inches)	Duration (minutes)	Depth of precipitation (inches)
5	.40	60	1.50
10	.50	80	1.90
15	.60	100	2.30
20	.70	120	2.70
30	.90	150	3.30
45	1.20	180	3.90

This table is made up from the formula  $A = 2t + 30$ . Its use, however, was discontinued at the end of 1948 and Table A is used by all sections for 1949 and the following years.

Publication of Data. A summary of maximum precipitation data for the years prior to 1896 is published in the annual report of the Chief of the Weather Bureau for 1895-1896. Data for the years 1896 through 1934 have been published in the appropriate annual reports of the Chief of the Weather Bureau. For the years 1935 through 1942 these data are published in the appropriate issue of the United States Meteorological Yearbook. Data for 1943 through 1949 will be presented in the final issue of the United States Meteorological Yearbook. For 1950 and each succeeding year excessive precipitation will be presented in the annual issues of the Climatological Data, National Summary.



Table 8

## EXCESSIVE SHORT DURATION RAINFALL

YEAR 1952

Station and date		Maximum precipitation in inches (5 to 180 minutes)											
		5	10	15	20	30	45	60	80	100	120	150	180
ALABAMA													
Birmingham Airport													
Mar. 3	0.25	0.42	0.49	0.51	0.54	0.55	0.56	0.57	0.62	0.69	0.74	0.81	
Mar. 10	.37	.49	.53	.56	.61	.64	.68	.71	.73	.75	.86	.91	
Mar. 31	.26	.30	.32	.34	.38	.42	.45	.47	.47	.48	.49	.50	
May 19	.23	.42	.47	.48	.51	.54	.58	.60	.62	.65	.66	.68	
May 19	.20	.31	.39	.43	.48	.50	.51	.52	.52	.52	.52	.52	
June 11	.45	.77	.90	1.02	1.22	1.49	1.60	1.68	1.68	1.68	1.68	1.68	
June 21	.36	.47	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48	
June 21	.50	.90	1.09	1.14	1.39	1.45	1.48	1.51	1.51	1.51	1.51	1.51	
July 7	.24	.45	.54	.63	.71	.73	.73	.74	.75	.77	.79	.80	
Aug. 6	.39	.66	.89	1.15	1.47	1.76	1.97	2.06	2.11	2.41	2.46	2.50	
Aug. 7	.53	.75	.90	1.13	1.78	2.10	2.12	2.14	2.15	2.16	2.16	2.16	
Aug. 9	.25	.39	.48	.62	.75	.80	1.22	1.34	1.40	1.42	1.43	1.43	
Sept. 2	.33	.63	.81	.89	.98	1.05	1.22	1.38	1.43	1.43	1.43	1.43	
Mobile													
Jan. 27-28	.30	.41	.48	.53	.59	.70	.85	.85	.85	.85	1.43	1.79	
Feb. 14-15	.29	.54	.75	.90	1.20	1.55	1.65	1.85	1.96	2.22	2.27	2.32	
Apr. 12	.45	.70	1.09	1.32	1.59	1.65	1.72	1.79	1.85	1.90	1.95	1.95	
May 10	.27	.41	.41	.41	.41	.41	.41	.41	.41	.41	.41	.41	
May 17	.23	.26	.30	.40	.40	.65	.65	.65	.66	.77	1.18	1.32	
May 19	.26	.48	.60	.79	1.25	1.51	1.75	2.13	2.24	2.24	2.26	2.26	
May 19	.36	.64	.78	.90	.99	1.03	1.06	1.08	1.10	1.13	1.14	1.15	
June 28	.34	.64	.89	1.05	1.16	1.20	1.27	1.34	1.39	1.44	1.46	1.48	
July 31	.22	.36	.52	.65	.82	.87	.89	.89	.89	.89	.89	.89	
Aug. 1	.24	.35	.41	.43	.43	.43	.43	.44	.44	.44	.44	.44	
Aug. 6	.22	.38	.54	.64	.75	.78	.78	.78	.78	.78	.78	.78	
Aug. 7	.25	.30	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35	
Aug. 19	.52	.68	.86	1.14	1.24	1.50	1.55	1.61	1.62	1.65	1.68	1.71	
Aug. 21	.28	.38	.48	.55	.58	.58	.58	.58	.58	.58	.58	.58	
Aug. 24	.36	.62	.87	.99	1.20	1.26	1.25	1.26	1.36	1.42	1.42	1.42	
Aug. 28	.30	.42	.47	.50	.59	.61	.61	.61	.61	.61	.61	.61	
Sept. 18	.37	.49	.49	.49	.50	.50	.50	.50	.50	.75	.78	1.03	
Sept. 18	.39	.71	1.08	1.18	1.27	1.28	1.57	2.07	2.33	2.77	3.07	3.60	
Sept. 18	.25	.42	.64	.79	.95	1.13	1.16	1.16	1.17	1.21	1.32	1.44	
Montgomery Airport													
Jan. 28	.17	.29	.42	.50	.56	.68	.81	1.00	1.11	1.18	1.25	1.29	
Mar. 3	.17	.26	.36	.41	.59	.71	.78	.90	.96	1.00	1.00	1.01	
Mar. 22	.23	.38	.44	.48	.51	.56	.64	.68	.77	.93	.94	1.00	
Apr. 25	.30	.50	.54	.65	.69	.79	.81	.88	.94	.95	.96	.96	
May 10	.42	.77	1.01	1.14	1.31	1.34	1.39	1.43	1.46	1.46	1.46	1.46	
May 17	.19	.33	.43	.49	.61	.67	.70	.73	.78	.78	.78	.82	
May 30	.29	.51	.61	.70	.80	.85	.91	.97	.99	1.03	1.04	1.09	
June 21	.33	.45	.47	.47	.47	.47	.47	.47	.47	.47	.47	.47	
July 1	.14	.27	.36	.40	.44	.45	.45	.45	.45	.45	.45	.45	
Aug. 5	.35	.58	.65	.65	.67	.71	1.16	1.21	1.23	1.24	1.25	1.33	
Aug. 9	.17	.26	.37	.45	.70	.83	.86	.93	.96	1.04	1.08	1.10	
Sept. 15	.26	.38	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	
Oct. 8	.24	.33	.34	.35	.35	.35	.35	.35	.35	.36	.42	.48	
Dec. 9	.25	.36	.43	.46	.52	.54	.57	.67	.74	.74	.74	.78	
Dec. 20	.18	.34	.47	.52	.63	.87	1.00	1.02	1.02	1.02	1.04	1.04	
ARIZONA													
Phoenix													
July 26	.38	.70	.91	1.03	1.07	1.07	1.08	1.08	1.08	1.08	1.08	1.08	
Aug. 24	.35	.57	.80	.98	1.07	1.08	1.10	1.10	1.10	1.11	1.13	1.16	
Prescott Airport													
Aug. 14	.25	.27	.28	.28	.32	.35	.35	.37	.48	.48	.48	.48	
Sept. 23	.20	.32	.36	.37	.37	.38	.38	.38	.38	.38	.38	.38	
Tucson Airport													
July 5	.37	.48	.75	.87	.94	.99	1.00	1.01	1.01	1.01	1.01	1.01	
Winslow Airport													
July 20	.23	.35	.46	.52	.56	.56	.56	.56	.56	.65	.69	.72	
Aug. 25	.13	.18	.35	.36	.36	.36	.36	.36	.36	.36	.36	.36	
Yuma Airport													
None													
ARKANSAS													
Fort Smith Airport													
Mar. 3	.08	.26	.38	.48	.60	.70	.77	.84	.89	.92	.92	.92	
Mar. 10	.30	.33	.34	.34	.34	.42	.42	.42	.43	.43	.62	.70	
Mar. 23	.26	.34	.41	.44	.61	.68	.75	.83	.86	.88	.92	.98	
July 15	.20	.35	.42	.48	.51	.54	.55	.55	.55	.55	.55	.55	
Aug. 6	.30	.45	.60	.65	.66	.84	.89	1.15	1.18	1.21	1.24	1.31	
Sept. 20	.30	.36	.41	.45	.52	.62	.65	.67	.68	.70	.70	.70	
Nov. 17	.28	.42	.44	.45	.73	.90	.94	.97	.98	1.02	1.03	1.06	
Little Rock Airport													
Jan. 31	.45	.55	.63	.63	.63	.66	.73	.74	.74	.75	.76	.76	
Feb. 12	.60	.82	.92	.97	1.10	1.13	1.16	1.23	1.32	1.34	1.35	1.35	
Feb. 19	.38	.50	.53	.55	.57	.59	.63	.78	.87	.90	.93	.98	
Mar. 21	.27	.32	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37	
Mar. 22	.40	.61	.61	.61	.61	.61	.61	.62	.62	.62	.62	.62	
May 9	.45	.90	1.28	1.30	1.32	1.36	1.36	1.36	1.68	1.72	1.73	1.73	
May 23	.45	.60	.68	.80	.97	1.12	1.14	1.15	1.16	1.19	1.25	1.32	
July 3	.24	.42	.60	.80	1.03	1.05	1.05	1.05	1.05	1.05	1.12	1.12	
Aug. 1	.40	.45	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62	
Aug. 6	.25	.45	.55	.65	.75	.77	.91	1.00	1.11	1.13	1.16	1.20	
Sept. 17	.37	.55	.70	.82	1.03	1.47	1.55	1.64	1.66	1.68	1.77	1.82	
Nov. 9	.25	.38	.42	.48	.55	.61	.64	.75	.86	.86	.86	.86	
Dec. 3	.27	.34	.40	.45	.53	.60	.74	.90	.98	1.02	1.23	1.30	
Texarkana													
Apr. 3	.30	.44	.48	.48	.49	.49	.51	.51	.59	.59	.67	.67	
Apr. 12	.23	.38	.40	.47	.61	.73	.82	.94	.96	1.05	1.25	1.32	
May 10	.24	.35	.40	.43	.48	.51	.51	.51	.51	.51	.51	.51	
June 5	.26	.32	.34	.34	.38	.48	.49	.49	.49	.50	.52	.52	
June 29	.30	.55	.85	1.02	1.40	1.53	1.55	1.56	1.56	1.56	1.56	1.56	
July 30	.24	.39	.47	.59	.60	.63	.65	.65	.65	.65	.65	.65	
Aug. 6	.40	.48	.55	.62	.65	.83	.84	.87	1.08	1.10	1.10	1.10	
Nov. 9	.30	.55	.75	.83	1.03	1.39	1.44	1.69	1.81	1.86	1.97	1.99	
Nov. 18	.17	.30	.37	.43	.53	.65	.73	.98	1.29	1.35	1.42	1.58	
Nov. 25	.35	.44	.47	.52	.57	.65	.75	.84	.91	.95	1.05	1.13	
CALIFORNIA													
Blue Canyon Airport													
None													

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
CALIFORNIA (Cont'd.)												
Eureka												
Sept. 9	0.28	0.37	0.42	0.45	0.52	0.58	0.60	0.61	0.62	0.63	0.64	0.65
Dec. 6	.26	.37	.49	.54	.76	1.01	1.18	1.27	1.31	1.35	1.45	1.51
Fresno Airport						None						
Los Angeles												
Jan. 16	.24	.40	.45	.48	.50	.56	.63	.71	.77	.84	.90	.96
Nov. 15	.18	.30	.36	.38	.43	.51	.60	.70	.79	.84	.89	.93
Red Bluff Airport						None						
Sacramento						None						
San Diego Airport												
Mar. 7	.18	.32	.46	.60	.81	1.03	1.21	1.42	1.49	1.64	1.83	1.89
San Francisco												
Jan. 14	.19	.29	.41	.45	.49	.54	.57	.60	.63	.67	.75	.91
COLORADO												
Denver Airport												
Grand Junction AP												
Aug. 26	.32	.33	.33	.39	.42	.43	.43	.49	.51	.53	.56	.58
Pueblo Airport												
July 30	.29	.45	.69	.84	.92	1.00	1.12	1.12	1.12	1.12	1.12	1.12
CONNECTICUT												
Bridgeport Airport												
June 9	.26	.31	.40	.45	.50	.52	.57	.57	.57	.57	.57	.57
Aug. 10	.30	.55	.70	.75	.84	.88	.95	1.21	1.31	1.32	1.34	1.37
Aug. 12	.26	.43	.45	.60	.78	1.20	1.45	1.60	1.66	1.70	1.76	1.79
Aug. 16	.25	.32	.35	.37	.43	.56	.62	.62	.62	.62	.62	.62
Aug. 16	.50	.92	1.02	1.03	1.03	1.08	1.08	1.08	1.25	1.27	1.27	1.27
Aug. 21	.29	.46	.57	.80	1.22	1.50	1.60	1.90	2.42	2.68	3.17	3.43
Sept. 1	.23	.33	.40	.40	.55	.55	.65	.65	.70	.73	.73	.85
Sept. 18	.27	.50	.57	.72	.77	.85	.89	.90	.90	.90	.90	.90
Hartford Airport												
May 29	.20	.35	.45	.47	.50	.51	.52	.52	.55	.58	.58	.58
June 26	.46	.53	.53	.53	.55	.56	.56	.56	.56	.58	.60	.60
Aug. 6	.15	.30	.38	.47	.59	.64	.71	.72	.73	.73	.73	.73
Aug. 10	.16	.23	.32	.40	.45	.52	.55	.56	.62	.63	.67	.67
New Haven Airport												
Mar. 4	.23	.38	.49	.54	.56	.56	.57	.59	.59	.62	.64	.66
Apr. 14	.23	.33	.40	.41	.42	.43	.43	.43	.44	.44	.44	.44
May 11-12	.18	.25	.29	.31	.45	.61	.82	.94	1.05	1.13	1.19	1.24
June 1	.15	.22	.28	.32	.54	.57	.70	.79	.93	1.34	1.00	1.00
Aug. 10	.33	.63	.75	.78	.79	.80	.83	.86	.89	1.34	1.35	1.35
Aug. 12	.28	.47	.61	.69	.92	1.18	1.26	1.33	1.45	1.48	1.52	1.53
Aug. 16-17	.16	.26	.38	.50	.53	.64	.70	.70	.80	1.01	1.02	1.03
Sept. 18	.43	.64	.71	.76	1.08	1.12	1.13	1.13	1.13	1.14	1.14	1.14
Sept. 19	.17	.30	.34	.34	.35	.36	.44	.49	.50	.50	.50	.50
DIST. OF COLUMBIA												
Washington												
May 11	.35	.50	.52	.53	.59	.60	.60	.61	.61	.61	.62	.63
May 25	.29	.47	.55	.59	.65	.77	.80	.80	.81	.81	.81	.81
June 17	.31	.52	.53	.54	.54	.55	.55	.55	.55	.55	.55	.55
June 29	.46	.71	.81	.82	.83	.86	.90	.92	.92	.92	.92	.92
July 9	.28	.54	.74	.92	1.14	1.34	1.43	1.46	1.50	1.52	1.53	1.53
Aug. 12	.33	.63	.82	.90	1.25	1.47	1.47	1.47	1.47	1.47	1.49	1.49
Aug. 20	.52	.98	1.29	1.38	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Sept. 1	.23	.36	.49	.61	.75	1.00	1.40	1.79	1.93	2.07	2.29	2.43
FLORIDA												
Apalachicola												
Feb. 2	.38	.63	.79	.92	1.07	1.19	1.25	1.33	1.40	1.44	1.49	1.59
Feb. 16	.41	.56	.71	.82	.91	.96	1.12	1.16	1.19	1.24	1.36	1.36
Feb. 20	.25	.29	.31	.33	.36	.38	.42	.49	.53	.54	.56	.57
Mar. 4	.20	.37	.47	.54	.59	.64	.66	.68	.68	.68	.68	.68
Mar. 11	.42	.59	.72	.81	.88	.93	.94	.94	.94	.94	.95	.96
Apr. 13	.43	.74	.92	1.01	1.09	1.22	1.37	1.49	1.54	1.57	1.61	1.62
Apr. 24	.20	.33	.38	.43	.54	.60	.60	.64	.64	.64	.64	.65
May 20	.46	.65	.67	.68	.72	.72	.72	.72	.72	.73	.84	.84
July 14	.19	.33	.42	.47	.62	.62	.63	.64	.90	1.08	1.09	1.09
July 21	.39	.75	.98	1.22	1.53	1.67	1.77	1.77	1.78	1.78	1.78	1.78
July 28	.24	.35	.36	.37	.37	.37	.37	.37	.37	.37	.37	.37
Aug. 8	.28	.42	.59	.75	.83	.92	.98	1.05	1.09	1.13	1.18	1.26
Aug. 7	.50	.70	.78	.80	.92	1.13	1.63	1.66	1.85	2.09	2.12	2.14
Aug. 9	.32	.42	.45	.45	.45	.45	.45	.46	.47	.47	.47	.48
Aug. 10	.24	.41	.57	.63	.97	1.04	1.19	1.33	1.34	1.43	1.44	1.44
Aug. 17	.16	.31	.39	.44	.50	.52	.53	.53	.53	.54	.57	.61
Aug. 19	.22	.33	.39	.45	.74	.85	.92	.93	.94	.94	.95	.95
Aug. 24	.44	.87	1.17	1.40	1.59	1.63	1.63	1.64	1.66	1.69	1.72	1.74
Sept. 21	.16	.28	.39	.47	.58	.65	.72	.85	.91	.96	1.10	1.20
Daytona Beach AP												
Jan. 28	.26	.33	.36	.38	.38	.39	.40	.40	.40	.45	.50	.50
Apr. 13	.20	.31	.38	.42	.54	.55	.55	.56	.60	.60	.66	.67
Apr. 26	.20	.28	.50	.60	.67	.73	.73	.75	.85	.87	.90	.97
May 18	.41	.76	1.09	1.32	1.56	1.60	1.66	1.68	1.68	1.68	1.70	1.76
May 21	.25	.35	.44	.45	.47	.47	.47	.47	.47	.47	.47	.47
May 29	.25	.45	.55	.65	1.05	1.07	1.09	1.10	1.10	1.10	1.10	1.10
June 13	.27	.47	.70	.90	1.22	1.22	1.22	1.23	1.25	1.25	1.25	1.25
July 9	.25	.32	.35	.40	.42	.43	.43	.40	.40	.40	.40	.40
Aug. 2	.44	.85	1.26	1.62	2.22	2.73	3.32	3.62	3.68	3.68	3.69	3.70
Aug. 9	.21	.35	.51	.61	.76	.77	.78	.78	.78	.78	.78	.78
Aug. 24	.30	.55	.75	.80	.98	1.13	1.30	1.34	1.35	1.38	1.41	1.46
*Sept. 5	(.30)	(.45)	(.60)	(.70)	(.85)	(.95)	(1.10)	(1.35)	(1.55)	(1.97)	(2.00)	(2.02)
Sept. 8	.50	.90	1.15	1.45	1.86	2.46	2.93	3.04	3.17	3.21	3.27	3.30
Sept. 22	.25	.40	.56	.63	.67	.71	.74	.76	.76	.78	.79	.79
Nov. 19	.25	.41	.53	.57	.58	.59	.59	.59	.59	.59	.59	.59
Fort Myers Airport												
Jan. 28	.28	.30	.33	.34	.40	.41	.44	.45	.54	.56	.62	.67
Mar. 26	.30	.36	.43	.44	.44	.47	.55	.59	.70	.78	.80	.81
June 6	.20	.28	.36	.42	.51	.72	.73	.73	.73	.73	.73	.73



Table 8-Continued

## EXCESSIVE SHORT DURATION RAINFALL

YEAR 1952

Station and date		Maximum precipitation in inches (5 to 180 minutes)											
		5	10	15	20	30	45	60	80	100	120	150	180
FLORIDA (Cont'd.)													
Fort Myers Airport (Cont'd.)													
June 7	0.17	0.20	0.37	0.43	0.59	0.71	0.85	0.91	0.91	0.91	0.91	0.91	0.91
June 17	.20	.28	.35	.44	.59	.78	.90	1.00	1.04	1.04	1.04	1.04	1.04
June 20	.39	.53	.57	.58	.58	.58	.58	.58	.58	.58	.58	.58	.58
June 21	.30	.50	.52	.54	.54	.55	.55	.55	.55	.55	.55	.55	.56
June 22	.33	.52	.57	.58	.58	.58	.58	.60	.60	.60	.60	.60	.60
June 25	.42	.65	.82	.90	1.08	1.09	1.12	1.13	1.13	1.13	1.13	1.13	1.13
July 25	.31	.36	.45	.51	.54	.65	.78	.83	.99	1.00	1.00	1.00	1.00
Sept. 11	.35	.53	.60	.70	.96	1.12	1.13	1.17	1.21	1.23	1.24	1.24	1.24
Aug. 1	.55	.70	.85	1.00	1.40	1.54	1.63	1.67	1.67	1.67	1.67	1.70	1.73
Aug. 6	.40	.75	1.02	1.11	1.24	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26
Aug. 9	.35	.58	.62	.67	.69	.70	.70	.70	.70	.70	.70	.70	.70
Aug. 18	.24	.40	.45	.55	.63	.73	.74	.75	.76	.77	.78	.78	.78
Aug. 31	.22	.27	.37	.42	.49	.50	.50	.50	.50	.50	.50	.50	.50
Sept. 5	.40	.70	.95	1.06	1.35	1.66	1.98	2.12	2.17	2.18	2.21	2.24	2.24
Sept. 7	.20	.34	.48	.50	.54	.56	.56	.56	.56	.56	.56	.56	.56
Sept. 11	.40	.55	.85	1.15	1.20	1.50	1.95	2.24	2.25	2.30	2.79	3.41	3.41
Sept. 17	.14	.26	.36	.41	.52	.54	.55	.55	.55	.55	.55	.55	.55
Sept. 20	.32	.35	.40	.41	.45	.46	.46	.46	.46	.46	.46	.46	.46
Sept. 27	.30	.44	.55	.64	.80	.83	.86	1.25	1.35	1.37	1.42	1.42	1.42
Oct. 8	.20	.27	.38	.41	.45	.51	.52	.52	.52	.52	.52	.52	.52
Oct. 15	.35	.60	.95	1.15	1.54	1.60	1.64	1.66	1.66	1.66	1.66	1.66	1.66
Oct. 15	.24	.45	.65	.80	.90	.92	.93	.94	.94	.94	.94	.95	.95
Jacksonville													
Mar. 11	.23	.38	.53	.63	.64	.65	.66	.69	.71	.71	.71	.71	.71
Mar. 24	.18	.30	.34	.36	.39	.42	.48	.50	.58	.63	.66	.69	.69
May 11	.26	.26	.27	.27	.30	.31	.32	.33	.34	.34	.34	.34	.34
May 18	.22	.37	.50	.70	.80	.83	.91	.94	.99	.99	.99	.99	.99
May 25	.54	.94	1.29	1.50	1.55	1.65	1.74	1.90	1.94	1.94	1.96	1.96	1.96
May 25	.18	.34	.51	.56	.62	.69	.73	.75	.78	.78	.78	.78	.78
May 26	.33	.56	.67	.70	.73	.73	.74	.75	.75	.75	.75	.75	.75
May 30	.35	.63	.73	.83	1.03	1.11	1.13	1.13	1.40	1.40	1.40	1.44	1.58
June 13	Instrument failure.												
July 20	.35	.60	.72	.80	1.04	1.30	1.50	1.65	1.68	1.69	1.69	1.69	1.69
July 20	.18	.21	.30	.38	.55	.58	.58	.59	.60	.60	.62	.62	.62
Aug. 15	.65	1.00	1.40	1.70	2.12	2.45	2.70	2.89	2.92	2.93	2.94	2.94	2.94
Aug. 30	.26	.35	.39	.44	.49	.52	.62	.78	.84	.92	1.22	1.31	1.31
Sept. 2	.35	.63	.64	.65	.82	.86	.90	1.02	1.05	1.07	1.09	1.10	1.10
Sept. 4	.22	.37	.53	.57	.71	.77	.80	.82	.86	.87	.87	.87	.87
Sept. 8	.26	.50	.70	.75	.95	.95	.95	.95	.95	.95	.95	1.02	1.02
Dec. 10	.25	.32	.33	.33	.34	.35	.35	.35	.35	.35	.35	.35	.35
Key West													
Feb. 5	.20	.37	.38	.39	.43	.43	.43	.43	.43	.43	.45	.49	.49
Apr. 26	.35	.49	.64	.87	1.00	1.28	1.47	1.51	1.72	1.72	1.72	1.72	1.72
June 12	.34	.54	.68	.75	.79	.80	.80	.80	.80	.80	.80	.80	.80
June 27	.35	.53	.68	.74	.92	1.04	1.11	1.12	1.12	1.12	1.12	1.12	1.12
July 4	.33	.52	.73	.89	1.12	1.54	1.55	1.59	1.59	1.67	1.79	1.80	1.80
Aug. 17-18	.42	.66	.80	.86	.89	.89	.89	.89	.90	1.26	1.27	1.27	1.27
Aug. 22	.23	.33	.34	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35
Sept. 2	.25	.35	.51	.64	.81	.83	.83	.85	.86	.86	1.14	1.14	1.14
Sept. 3	.16	.23	.38	.42	.43	.44	.44	.44	.44	.44	.44	.44	.44
Sept. 12	.25	.44	.51	.52	.52	.52	.52	.52	.54	.54	.54	.61	.61
Oct. 2	.45	.75	.94	1.07	1.17	1.34	1.37	1.38	1.38	1.38	1.38	1.38	1.38
Oct. 12	.44	.80	1.06	1.34	1.53	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55
Oct. 17	.32	.45	.53	.57	.59	.62	.64	.66	.72	.73	.73	.73	.73
Oct. 19	.33	.46	.50	.54	.56	.66	.67	.68	.68	.69	.69	.69	.69
Melbourne Airport													
July 6	.35	.70	.95	1.10	1.20	1.30	1.76	1.83	1.90	1.97	2.09	2.15	2.15
July 27	.30	.55	.62	.64	.64	.64	.64	.64	.64	.64	.64	.64	.64
Aug. 16	.35	.50	.60	.73	1.15	1.20	1.20	1.26	1.26	1.27	1.27	1.27	1.27
Aug. 25	.30	.60	.73	.81	.85	.86	.89	.89	.89	.91	.91	.98	.98
Sept. 21	.20	.25	.48	.50	.52	.55	.73	.85	.92	.93	.96	.96	.96
Sept. 28	.25	.45	.65	.85	.95	.99	1.06	1.10	1.11	1.11	1.11	1.11	1.11
Sept. 29	.30	.60	.75	.80	1.03	1.10	1.38	1.87	1.90	1.90	1.95	1.95	1.95
Oct. 13	.30	.42	.63	.72	.77	.77	.77	.77	.77	.77	.77	.77	.77
Oct. 19	.25	.38	.50	.60	.80	1.00	1.10	1.10	1.14	1.18	1.33	1.37	1.37
Oct. 21	.35	.55	.75	.95	1.20	1.50	1.65	1.70	1.71	1.72	1.82	1.82	1.82
Miami													
Mar. 15	.16	.26	.41	.44	.45	.60	.69	.72	.72	.72	.72	.72	.72
Apr. 26	.17	.28	.40	.45	.51	.59	.73	.82	.86	.90	1.00	1.11	1.11
May 12	.20	.31	.36	.41	.50	.51	.51	.51	.74	.76	.76	.77	.77
May 27	.25	.38	.47	.51	.53	.54	.54	.54	.54	.55	.60	.60	.60
July 3	.24	.42	.62	.81	1.02	1.20	1.34	1.42	1.48	1.54	1.59	1.63	1.63
Aug. 3	.39	.63	.75	.85	.97	1.17	1.21	1.23	1.37	1.47	1.49	1.52	1.52
Aug. 16	.18	.35	.45	.50	.57	.62	.62	.62	.62	.62	.62	.62	.62
Sept. 7	.27	.38	.39	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40
Sept. 18	.44	.68	.79	.91	1.11	1.18	1.20	1.27	1.28	1.29	1.30	1.30	1.30
Sept. 27	.20	.36	.41	.42	.42	.43	.43	.43	.43	.43	.43	.43	.43
Oct. 5	.18	.29	.42	.50	.55	.63	.73	.79	.82	.87	.89	.90	.90
Oct. 9	.30	.44	.47	.49	.57	.70	.77	.78	.80	.82	.85	.85	.85
Oct. 18	.23	.33	.36	.41	.56	.72	.73	.76	.89	.91	.93	.93	.93
Oct. 24	.32	.52	.71	.89	1.09	1.20	1.23	1.25	1.25	1.26	1.26	1.40	1.40
Oct. 27	.39	.62	.79	.92	1.22	1.76	2.31	2.92	3.04	3.86	4.43	4.78	4.78
Oct. 31	.36	.56	.69	.82	1.07	1.20	1.21	1.47	1.47	1.74	1.76	1.76	1.76
Orlando Airport													
Feb. 16	.20	.28	.30	.45	.62	.82	1.00	1.10	1.12	1.12	1.17	1.40	1.40
Mar. 15	.62	.82	.84	.86	1.05	1.40	1.68	1.86	1.90	1.98	2.03	2.04	2.04
Mar. 26	.20	.30	.40	.50	.51	.51	.53	.61	.67	.78	.88	.88	.88
Apr. 13	.82	1.15	1.19	1.25	1.25	1.26	1.30	1.38	1.38	1.39	1.40	1.40	1.40
Apr. 26	.28	.50	.76	.77	.86	.87	.88	.95	1.00	1.10	1.12	1.14	1.14
May 21	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37
June 30	.27	.50	.70	.75	.77	1.15	1.16	1.16	1.16	1.16	1.16	1.16	1.16
July 3	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28
July 10	.26	.44	.56	.81	.88	.88	.89	.89	.90	.92	.92	.92	.92
July 13	.22	.30	.40	.43	.56	.58	.59	.62	.64	.65	.68	.68	.68
Aug. 1	.20	.35	.50	.60	.85	.90	.90	.92	.92	.92	.92	.92	.92
Aug. 4	.27	.34	.38	.42	.48	.48	.48	.48	.48	.48	.48	.48	.48
Aug. 23	.29	.30	.30	.33	.33	.41	.41	.43	.46	.59	.60	.60	.60
Aug. 30	.21	.30	.38	.38	.38	.38	.38	.50	.50	.50	.50	.50	.50
Aug. 31	.35	.60	.77	.77	.77	.77	.78	.78	.78	.78	.78	.78	.78
Sept. 5	.16	.27	.35	.41	.54	.63	.79	.82	.83	.84	.85	.86	.86
Sept. 7	.27	.33	.37	.42	.47	.51	.54	.54	.54	.54	.54	.54	.54
Sept. 21	.22	.31	.33	.34	.37	.41	.42	.42	.42	.42	.42	.42	.42
Sept. 24	.20	.25	.35	.38	.49	.51	.56	.63	.65	.65	.65	.65	.65
Sept. 29	.20	.25	.35	.38	.55	.56	.57	.60	.60	.60	.60	.60	.60
Pensacola													
Jan. 28	.28	.45	.54	.58	.62	.66	.71	.77	.84	.85	.86	.88	.88
Feb. 15	.22	.38	.53	.58	.90	1.14	1.28	1.38	1.41	1.52	1.57	1.59	1.59
Mar. 3-4	.24	.45	.57	.64	.74	.79	.92	1.00	1.06	1.20	1.22	1.44	1.44

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	150	180	
FLORIDA (Cont'd.)												
Pensacola (Cont'd.)												
Mar. 31	0.19	0.36	0.49	0.61	0.87	1.11	1.46	1.69	2.06	2.22	2.36	2.40
Apr. 7	.21	.39	.52	.59	.63	.73	.77	.79	.81	.84	.93	.95
Apr. 12-13	.40	.53	.58	.61	.68	.76	.91	1.02	1.10	1.13	1.20	1.22
July 7	.26	.42	.48	.49	.55	.55	.56	.56	.56	.56	.56	.58
July 22	.33	.53	.66	.71	.88	1.01	1.10	1.11	1.11	1.12	1.12	1.12
Aug. 7	.26	.34	.35	.35	.35	.37	.39	.42	.44	.44	.48	.52
Aug. 16	.11	.21	.31	.40	.55	.69	.78	.79	.79	.79	.79	.79
Aug. 21	.35	.60	.80	.85	.89	1.35	1.48	1.52	1.56	1.58	1.58	1.58
Aug. 24	.42	.64	.76	.80	.90	1.21	1.47	1.55	2.12	2.14	2.17	2.18
*Sept. 5	(.18)	(.31)	(.49)	(.64)	(.84)	(.94)	(.99)	1.00	1.00	1.00	1.00	(1.00)
Sept. 13	.24	.35	.40	.49	.61	.72	.79	1.08	1.31	1.38	1.53	1.60
Dec. 4	.23	.38	.42	.63	.69	.72	.85	.98	1.03	1.06	1.07	1.07
Dec. 10	.22	.26	.27	.42	.44	.45	.45	.45	.46	.48	.48	.48
**Tampa Airport												
Mar. 15	.36	.66	.85	.98	1.15	1.22	1.31	1.36	1.40	1.41	1.51	1.58
Mar. 26	.19	.27	.36	.44	.51	.71	.87	.82	.93	.94	.95	.96
May 28	.39	.63	.82	.89	.98	1.01	1.04	1.05	1.05	1.05	1.06	1.07
May 30	.15	.20	.25	.35	.50	.61	.65	.67	.67	.67	.67	.67
June 13	.26	.49	.70	.83	1.13	1.30	1.32	1.34	1.34	1.34	1.34	1.34
June 30	.23	.37	.44	.52	.60	.61	.61	.61	.61	.61	.61	.61
July 1	.48	.85	.97	1.00	1.09	1.09	1.10	1.10	1.11	1.11	1.11	1.11
July 2	.30	.49	.50	.50	.50	.54	.77	.78	.78	.78	.78	.78
July 4	.40	.54	.74	.84	.93	.94	.95	1.34	1.37	1.38	1.38	1.38
July 6	.29	.53	.72	.79	.86	.88	.88	.88	.88	.88	.89	.89
July 12	Rain	Gage	inoperative	.98	.98	.98	.98	.98	.98	.98	.98	.98
July 21	.22	.34	.41	.63	.70	.73	.76	.82	.86	.88	.93	.94
July 29	.26	.45	.55	.58	.59	.61	.61	.61	.62	.64	.67	.68
July 31	.19	.32	.35	.37	.39	.42	Rain	gage	inoperative.			
GEORGIA												
Atlanta Airport												
Mar. 10	.38	.42	.45	.48	.51	.54	.59	.66	.70	.75	.76	.80
Mar. 21	.23	.29	.38	.42	.48	.50	.55	.58	.60	.63	.64	.65
Mar. 22	.23	.38	.42	.57	.63	.64	.67	.70	.70	.70	.70	.71
May 10	.25	.30	.33	.42	.52	.55	.56	.57	.57	.59	.67	.78
May 20	.26	.26	.26	.26	.26	.26	.26	.26	.26	.26	.26	.26
May 29	.27	.50	.70	.87	.96	1.08	1.11	1.25	1.34	1.36	1.37	1.40
June 11	.35	.63	.86	1.08	1.14	1.31	1.33	1.33	1.34	1.34	1.34	1.34
June 16	.18	.35	.43	.56	.70	.83	.86	.87	.87	.87	.87	.87
Aug. 5	.14	.22	.29	.39	.51	.58	.60	.61	.63	.64	.66	.67
Aug. 21	.50	.73	1.15	1.49	1.60	1.76	1.79	1.80	1.80	1.80	1.80	1.80
Aug. 29	.17	.32	.42	.44	.50	.63	.76	.81	.83	.93	.99	1.06
Augusta Airport												
Mar. 4	.30	.44	.74	.76	.78	.86	.94	1.01	1.09	1.17	1.20	1.23
Mar. 23	.32	.38	.41	.43	.48	.54	.56	.58	.58	.58	.72	.78
Apr. 26	.11	.21	.31	.38	.56	.56	.56	.56	.56	.56	.56	.56
May 11	.22	.28	.35	.42	.50	.84	.94	.99	.99	.99	.99	.99
June 21	.65	.40	.65	.95	1.14	1.15	1.15	1.15	1.15	1.15	1.15	1.15
June 30-July 1	.40	.72	.93	1.05	1.50	2.03	2.26	2.31	2.35	2.40	2.44	2.47
July 25	.35	.50	.75	.90	1.32	1.34	1.35	1.37	1.51	1.51	1.51	1.55
Aug. 6	.16	.31	.45	.49	.49	.50	.50	.50	.50	.50	.50	.50
Aug. 7	.33	.39	.44	.44	.45	.46	.47	.48	.49	.55	.57	.59
Aug. 14	.35	.55	.67	.69	.76	1.20	1.42	1.67	1.67	1.67	1.68	1.68
Aug. 22	.45	.75	1.02	1.21	1.76	1.96	1.97	1.98	1.98	1.98	1.98	1.98
Sept. 2	.29	.33	.35	.36	.37	.40	.40	.40	.40	.40	.40	.40
Sept. 11	.18	.30	.30	.30	.30	.35	.35	.45	.51	.51	.51	.51
Macon Airport												
Feb. 13	.21	.31	.42	.46	.49	.53	.54	.54	.60	.64	.65	.66
Feb. 14	.28	.39	.54	.76	.83	.83	.83	.97	1.00	1.32	1.48	1.48
Mar. 4	.18	.36	.46	.49	.72	.97	1.13	1.20	1.24	1.31	1.41	1.48
Mar. 10	.39	.54	.67	.75	.89	1.05	1.12	1.26	1.32	1.34	1.35	1.35
May 8	.36	.66	.91	1.08	1.31	1.45	1.46	1.49	1.51	1.56	1.62	1.67
May 11	.33	.31	.37	.38	.42	.44	.45	.45	.45	.45	.45	.45
May 29	.22	.33	.47	.53	.63	.98	1.12	1.32	1.45	1.50	1.55	1.59
June 15	.50	.76	1.05	1.22	1.41	1.42	1.42	1.42	1.42	1.42	1.42	1.42
June 20	.48	.73	.88	1.03	1.38	1.67	1.69	2.02	2.50	2.53	2.54	2.55
June 28	.12	.23	.28	.36	.47	.70	.73	.74	.77	.78	.78	.80
July 25	.19	.31	.33	.36	.47	.50	.51	.52	.53	.54	.54	.54
Aug. 13	.20	.35	.42	.43	.44	.44	.44	.44	.44	.44	.45	.45
Aug. 19	.28	.37	.44	.47	.66	.86	1.17	1.36	1.42	1.43	1.44	1.44
Dec. 20	.31	.45	.48	.48	.50	.75	.95	1.01	1.12	1.13	1.13	1.16
Savannah Airport												
Mar. 11	.27	.42	.46	.47	.65	.93	1.00	1.01	1.04	1.07	1.13	1.13
May 25	.56	1.02	1.34	1.53	1.65	1.66	2.03	2.56	2.72	2.80	2.86	2.88
May 30	.23	.46	.56	.68	.75	.76	.77	.82	.83	.87	.88	.89
June 2	.54	.94	1.27	1.56	1.94	2.08	2.20	2.24	2.29	2.35	2.36	2.36
Aug. 14	.26	.41	.57	.69	.76	.77	.79	.79	.79	.79	.79	.82
Aug. 20	.27	.45	.57	.68	.82	1.14	1.23	1.23	1.24	1.25	1.26	1.26
Aug. 23	.19	.32	.37	.42	.45	.47	.48	.51	.55	.76	.97	.97
IDAHO												
Boise Airport												
None												
ILLINOIS												
Cairo												
Mar. 21	.30	.43	.45	.48	.52	.73	.81	.90	.96	.98	1.23	1.50
May 18	.14	.23	.31	.33	.45	.65	.71	.73	.73	.73	.73	.75
May 23	.27	.30	.33	.34	.35	.38	.39	.41	.43	.43	.44	.44
May 24	.16	.25	.36	.42	.45	.45	.45	.45	.45	.45	.45	.45
July 3	.27	.52	.59	.61	.62	.74	.84	.92	.97	1.01	1.21	1.21
July 14	.40	.72	.93	.99	1.23	1.55	1.70	2.09	2.49	2.70	2.74	2.76
Aug. 11-12	.61	1.08	1.45	1.68	2.08	2.30	2.70	3.64	4.16	4.65	5.29	6.20
Sept. 1	.22	.51	.61	.64	.66	.68	.71	.76	.85	.87	1.05	1.31
Sept. 10	.27	.50	1.03	1.28	1.70	2.01	2.14	2.24	2.24	2.24	2.25	2.26
Sept. 18	.30	.45	.52	.59	.62	.67	.68	.68	.69	.69	.69	.69
Chicago Airport												
May 23	.29	.35	.35	.35	.42	.63	.63	.63	.63	.63	.63	.63
June 12	.19	.30	.35	.39	.49	.57	.59	.84	.95	.99	1.05	1.13
June 13	.20	.33	.40	.48	.58	.68	.71	.75	.79	.82	.85	.89
July 23	.36	.47	.49	.49	.58	.60	.60	.61	.86	.88	.88	.90
Aug. 9	.43	.62	.73	1.16	1.23	1.51	1.54	1.58	1.60	1.60	1.60	1.60
Sept. 1	.38	.49	.51	.52	.54	.55	.56	.58	.60	.60	.61	.65



Table 8-Continued

## EXCESSIVE SHORT DURATION RAINFALL

YEAR 1952

Station and date	Maximum precipitation in inches (5 to 180 minutes)													Station and date	Maximum precipitation in inches (5 to 180 minutes)													
	5	10	15	20	30	45	60	80	100	120	150	180	5		10	15	20	30	45	60	80	100	120	150	180			
ILLINOIS (Cont'd)														IOWA (Cont'd)														
Moline Airport														Sioux City Airport (Cont'd)														
June 8	0.30	0.53	0.64	0.67	1.20	1.32	1.40	2.05	2.45	2.50	2.55	2.55		0.43	0.69	0.81	0.87	1.02	1.23	1.28	1.31	1.32	1.32	1.32	1.32			
June 13	.24	.28	.32	.37	.47	.75	.78	.90	.92	.92	.92	.92																
June 27	.40	.50	.60	.65	.70	.71	.73	1.00	1.05	1.07	1.07	1.07																
July 14	.20	.25	.38	.43	.48	.49	.50	.50	.50	.51	.56	.57		KANSAS														
July 18	.50	.52	.53	.53	.53	.53	.60	.65	.70	.82	.83	.93		Concordia														
Aug. 20	.25	.45	.65	.80	1.20	1.33	1.38	1.45	1.51	1.51	1.51	1.51		May 21	.24	.47	.70	.80	.80	.91	1.10	1.11	1.11	1.11	1.11			
Nov. 16	.17	.23	.32	.36	.46	.57	.81	.85	.85	.85	.85	.85		Aug. 11	.25	.49	.69	.89	1.27	1.31	1.34	1.43	1.45	1.46	1.49	1.51		
Nov. 17	.20	.33	.37	.39	.41	.43	.43	.44	.50	.55	.63	.64		Dodge City Airport														
Peoria Airport														Apr. 8	.30	.39	.42	.44	.49	.51	.57	.58	.70	.74	1.08	1.13		
June 8	.38	.61	.80	.89	1.18	1.32	1.34	1.44	1.52	1.59	1.64	1.65		Apr. 18	.28	.48	.53	.58	.77	.81	.94	1.09	1.17	1.29	1.34	1.41		
June 12	.25	.45	.51	.52	.55	.57	.58	.58	.59	.59	.60	.60		May 23	.18	.26	.33	.36	.55	.75	.79	.81	.87	.91	1.02	1.06		
June 13	.19	.30	.39	.48	.70	.83	.91	.91	.91	.92	.94	.96		Aug. 17	.19	.34	.38	.42	.44	.57	.58	.70	.70	.70	.70	.70		
Aug. 11	.22	.32	.32	.37	.45	.49	.80	.90	.95	.97	1.03	1.11		Goodland Airport														
Sept. 1	.36	.42	.62	.69	.72	.73	.74	.75	.78	.78	.78	.86		*May 7														
Nov. 17	.27	.38	.44	.46	.51	.56	.58	.61	.63	.64	.65	.73								.99								
Springfield Airport														Topeka														
June 12	.25	.45	.55	.57	.62	.64	.64	.64	.64	.64	.64	.64		Apr. 22	.19	.30	.34	.38	.45	.50	.50	.51	.51	.51	.52	.56		
June 13	.14	.26	.39	.44	.45	.46	.46	.51	.51	.51	.51	.56		May 22	.27	.51	.73	.92	1.26	1.34	1.48	1.56	1.59	1.59	1.66	1.66		
July 2	.25	.35	.48	.60	.80	1.10	1.34	1.52	1.55	2.00	2.02	2.03		May 31	.16	.29	.35	.36	.38	.43	.47	.49	.49	.49	.49	.49		
Nov. 2	.27	.32	.33	.33	.34	.35	.35	.35	.35	.35	.41	.41		Aug. 21	.26	.45	.48	.50	.51	.53	.55	.86	.90	.91	.94	.94		
INDIANA														Wichita Airport														
Evansville Airport														July 12	.30	.40	.49	.51	.58	.73	.76	.95	1.30	1.43	1.58	1.70		
Jan. 16	.30	.35	.38	.39	.39	.39	.39	.41	.41	.41	.41	.41		KENTUCKY														
Mar. 21	.19	.36	.40	.44	.51	.60	.73	.85	.95	1.03	1.15	1.34		Lexington Airport														
Apr. 13	.25	.32	.34	.35	.39	.47	.47	.47	.47	.48	.48	.48		Mar. 21-22	.30	.40	.50	.60	.65	.77	.97	1.12	1.17	1.32	1.51	1.67		
May 17	.24	.34	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35		May 15	.30	.50	.53	.57	.59	.59	.59	.59	.59	.59	.59	.59		
June 20	.37	.62	.73	.76	.76	.78	.79	.80	.80	.80	.80	.80		June 20	.38	.43	.54	.55	.55	.63	.73	.74	.76	.76	.76	.76		
June 30	.25	.45	.55	.80	.95	.98	.99	.99	.99	.99	.99	.99		June 30	.28	.55	.80	.90	.95	.97	.97	.97	.97	.97	.98	.98		
July 31	.20	.40	.49	.55	.56	.57	.57	.57	.57	.57	.57	.57		July 3	.22	.30	.38	.45	.60	.68	.72	.72	.72	.72	.72	.72		
Aug. 11	.18	.29	.36	.38	.43	.44	.45	.45	.45	.45	.45	.45		July 31	.25	.40	.45	.49	.50	.50	.50	.50	.50	.50	.50	.50		
Aug. 11	.16	.31	.40	.42	.42	.42	.70	.75	.80	.95	.97	1.03		Aug. 9	.40	.65	.80	.95	1.10	1.20	1.21	1.21	1.21	1.21	1.21	1.21		
Sept. 18	.15	.27	.35	.37	.40	.41	.47	.50	.54	.55	.58	.59		Sept. 2	.38	.45	.47	.48	.49	.51	.53	.53	.54	.54	.56	.57		
Fort Wayne Airport														Louisville Airport														
May 5	.25	.30	.42	.54	.55	.79	.84	.94	1.00	1.08	1.11	1.12		June 26	.20	.33	.34	.35	.39	.41	.41	.41	.41	.41	.41	.41		
June 13	.42	.55	.66	.73	.82	.87	.91	.94	1.01	1.08	1.17	1.20		June 20	.21	.38	.50	.60	.67	.69	.71	.71	.72	.73	.73	.73		
July 22	.36	.53	.55	.66	.77	1.32	1.49	1.54	1.55	1.55	1.55	1.55		June 21	.29	.43	.61	.71	.89	.97	1.26	1.45	1.70	1.83	2.18	2.25		
Aug. 15-16	.53	.61	.63	.64	.64	.66	.76	.78	.81	.85	.85	.91		July 28	.38	.50	.53	.54	.54	.54	.54	.54	.54	.54	.54	.54		
Aug. 21	.27	.48	.66	.70	.75	.79	.83	.85	.91	.93	1.07	1.07		Aug. 12	.25	.29	.30	.30	.32	.32	.32	.34	.34	.35	.35	.44		
Sept. 1	.27	.34	.37	.39	.40	.43	.45	.49	.52	.57	.60	.60		Sept. 1-2	.25	.33	.43	.51	.58	.78	.89	.90	.97	.99	1.03	1.06		
Indianapolis AP														LOUISIANA														
Jan. 16	.43	.65	.71	.72	.74	.77	.77	.77	.77	.77	.77	.77		New Orleans														
June 12	.30	.45	.70	.77	.80	.83	.90	.93	.93	.97	1.04	1.04		Jan. 27	.17	.26	.41	.52	.68	.81	.87	.95	1.00	1.03	1.10	1.18		
June 21	.32	.40	.48	.50	.50	.51	.52	.52	.52	.52	.52	.52		Feb. 1	.31	.57	.86	1.01	1.23	1.43	1.56	1.64	1.64	1.64	1.64	1.64		
June 27	.45	.75	.85	.95	1.00	1.05	1.15	1.45	1.65	1.75	1.79	1.79		Feb. 14	.27	.44	.66	.84	1.10	1.26	1.48	1.70	1.77	1.77	1.90	1.90		
July 3	.30	.55	.60	.65	.70	.70	.80	1.00	1.10	1.11	1.11	1.11		Feb. 20	.44	.77	.99	1.20	1.46	1.71	1.79	1.89	1.94	1.97	2.11	2.22		
Aug. 30	.20	.34	.48	.50	.52	.52	.52	.52	.52	.52	.52	.52		Mar. 18	.38	.49	.54	.55	.61	.62	.63	.64	.64	.64	.64	.64		
Sept. 18	.40	.65	.85	1.10	1.27	1.35	1.40	1.48	1.58	1.61	1.63	1.64		Mar. 31	.16	.28	.41	.47	.54	.65	.80	.88	.88	.88	.90	.92		
South Bend Airport														Mar. 31	.28	.39	.50	.53	.54	.54	.56	.56	.57	.57	.57	.57	.58	
May 25	.25	.49	.54	.57	.58	.58	.60	.60	.60	.60	.60	.60		Mar. 31	.35	.58	.63	.65	.76	.94	.98	1.03	1.10	1.19	1.46	1.53		
June 12	.43	.54	.63	.67	.71	.78	.83	.88	1.00	1.06	1.20	1.27		Apr. 4	.34	.53	.61	.66	.73	.76	.79	.88	.93	.98	1.02	1.04		
June 13	.31	.41	.51	.61	.71	.76	.78	.81	.88	.91	.98	1.01		Apr. 12	.60	.77	.85	1.00	1.15	1.33	1.57	1.94	2.17	2.24	2.32	2.35		
July 18	.45	.58	.67	.70	.80	.84	.85	.91	1.03	1.03	1.11	1.11		May 19	.34	.56	.65	.70	.76	.81	.87	.98	1.02	1.04	1.12	1.13		
Aug. 14	.25	.30	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35		May 23	.12	.18	.26	.38	.51	.64	.66	.66	.66	.66	.66	.66		
Aug. 16	.25	.50	.60	.78	.92	.93	1.00	1.02	1.06	1.08	1.09	1.09		May 24	.28	.30	.30	.30	.30	.30	.30	.30	.32	.33	.38	.38		
Terre Haute Airport														May 29	.20	.37	.50	.54	.58	.68	.75	.77	.77	.77	.77	.77	.77	.77
Jan. 26	.38	.56	.68	.85	1.03	1.17	1.48	2.13	2.24	2.30	2.40	2.49		June 9	.25	.39	.53	.62	.69	.74	.74	.76	.84	.85	.85	.85		
May 24	.32	.43	.44	.45	.45	.45	.45	.49	.50	.50	.50	.54		June 10	.33	.62	.87	1.05	1.43	1.66	1.73	1.73	1.73	1.73	1.73	1.73		
June 14	.38	.72	.85	.90	.96	1.00	1.01	1.03	1.05	1.17	1.21	1.24		July 9	.32	.45	.61	.77	1.00	1.20	1.22	1.22	1.22	1.22	1.22	1.22		
June 22	.45	.68	1.03	1.13	1.46	1.78	1.88	1.88	1.93	2.22	2.37	2.60		July 15	.28	.36	.38	.40	.44	.50	.55	.64	.71	.76	.82	.89		
Aug. 15	.26																											



# EXCESSIVE SHORT DURATION RAINFALL

Table 8-Continued

YEAR 1952

Station and date	Maximum precipitation in inches (5 to 180 minutes)												Station and date	Maximum precipitation in inches (5 to 180 minutes)												
	5	10	15	20	30	45	60	80	100	120	150	180		5	10	15	20	30	45	60	80	100	120	150	180	
MASSACHUSETTS													MISSISSIPPI (Cont'd.)													
Boston Airport													Jackson Airport													
June 26	0.21	0.30	0.38	0.41	0.45	0.49	0.50	0.50	0.50	0.50	0.50	0.50	July 4	0.20	0.32	0.42	0.46	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	
Aug. 5	.55	.93	1.12	1.22	1.50	1.75	1.79	1.80	1.81	1.81	1.81	2.02	Sept. 2	.33	.51	.63	.67	.75	.80	.84	.86	.88	1.02	1.02	1.03	
Aug. 10	.23	.38	.50	.65	.90	.95	.97	1.02	1.04	1.13	1.19	1.27	Sept. 18	.21	.32	.42	.55	.68	.77	.77	.77	.77	.80	.80		
Nantucket Airport													Meridian Airport													
Feb. 4	.27	.37	.41	.43	.50	.61	.72	.83	.89	1.02	1.12	1.17	Mar. 3	.20	.30	.38	.40	.50	.70	.88	.90	1.10	1.22	1.28	1.30	
May 21	.16	.28	.36	.38	.40	.42	.43	.45	.46	.46	.47	.47	Apr. 24	.35	.55	.70	.80	.90	1.25	1.80	2.00	2.20	2.30	2.30	2.30	
Aug. 6	.28	.31	.34	.35	.35	.36	.36	.37	.37	.42	.43	.43	May 19	.41	.68	.80	1.10	1.70	2.32	2.34	2.60	3.27	3.60	3.90	4.02	
Aug. 10	.39	.65	.73	.99	1.11	1.12	1.12	1.12	1.12	1.12	1.12	1.12	Vicksburg													
Pittsfield Airport													Mar. 10													
June 17	.45	.65	.72	.78	.81	.82	.82	.83	.83	.83	.83	.83	May 18	.29	.39	.42	.54	.62	.63	.66	.71	.71	.71	.71	.71	
June 26	.22	.35	.45	.54	.54	.54	.54	.54	.54	.54	.54	.54	July 2	.34	.63	.78	.89	1.11	1.16	1.16	1.16	1.16	1.16	1.16	1.16	
July 4	.25	.27	.39	.50	.67	.77	.85	.86	.88	.88	.88	.88	Sept. 17	.32	.46	.51	.57	.60	.60	.61	.95	1.03	1.03	1.03	1.03	
July 31	.25	.40	.47	.50	.51	.51	.51	.52	.53	.53	.53	.53	MISSOURI													
Aug. 6	.23	.32	.42	.44	.45	.45	.45	.46	.46	.46	.46	.46	Columbia Airport													
Aug. 10	.25	.33	.45	.50	.55	.55	.55	.55	.55	.55	.55	.55	May 24	.25	.40	.50	.60	.81	.85	.89	1.03	1.14	1.14	1.14	1.14	
Aug. 17	.16	.19	.32	.37	.52	.75	.83	.91	.97	1.05	1.06	1.06	June 5	.41	.81	1.12	1.25	1.35	1.47	1.80	2.15	2.16	2.17	2.18	2.18	
Sept. 19	.40	.40	.41	.43	.43	.43	.43	.43	.43	.44	.47	.49	Aug. 8	.23	.43	.47	.50	.53	.54	.54	.70	.78	.79	.80	.80	
MICHIGAN													Aug. 8	.20	.28	.40	.55	.71	.88	1.18	1.26	1.39	1.39	1.39	1.39	1.39
Alpena													Aug. 14	.26	.39	.53	.65	.92	1.09	1.14	1.19	1.25	1.30	1.39	1.41	
July 21	.47	.50	.54	.55	.55	.55	.56	.56	.56	.56	.56	.56	Aug. 21	.26	.44	.49	.50	.54	.57	.62	.64	.65	.67	.78	.86	
Aug. 15	.22	.35	.38	.40	.41	.41	.41	.41	.41	.41	.41	.41	Sept. 17	.25	.31	.35	.39	.45	.68	.86	.96	1.00	1.02	1.03	1.03	
Aug. 31	.45	.79	.88	.91	.94	.98	1.03	1.05	1.06	1.06	1.06	1.06	Nov. 17	.18	.29	.39	.53	.70	.90	1.02	1.10	1.14	1.15	1.20	1.37	
Detroit Airport													Kansas City AP													
May 23	.21	.28	.49	.52	.53	.55	.57	.59	.64	.68	.69	.74	Apr. 22	.37	.44	.47	.49	.50	.57	.59	.60	.60	----	----	.75	
July 8	.28	.48	.62	.65	.69	.69	.71	.72	.73	.73	.73	.73	July 21	.27	.40	.66	.72	.82	1.13	1.65	2.10	2.15	2.20	2.90	3.12	
July 20	.23	.40	.41	.43	.46	.51	.58	.69	.73	.76	.76	.76	July 2	.35	.60	.80	1.00	1.53	1.61	1.62	1.63	1.63	1.63	1.63	1.63	
Sept. 1	.31	.44	.50	.60	.73	.75	.78	.79	.79	.82	.83	.83	Aug. 1	.25	.43	.55	.63	.70	.89	.94	.98	.98	.98	.98	1.64	
Nov. 16-17	.23	.40	.44	.46	.48	.49	.50	.53	.55	.59	.64	.71	Aug. 21	.20	.40	.40	.48	.55	.78	.92	1.08	1.08	1.18	1.57	1.57	
Escanaba													Sept. 1	.35	.45	.51	.55	.75	.82	1.20	1.50	1.62	1.62	1.62	1.62	1.64
June 24	.37	.56	.61	.63	.64	.65	.66	.76	.78	.79	.79	.79	Saint Joseph AP													
July 13	.22	.37	.46	.54	.66	.74	.78	.79	.81	.83	.83	.85	Aug. 1	.49	.63	.64	.64	.70	.71	.76	.76	.83	1.05	1.05		
July 30	.15	.23	.38	.55	.80	1.07	1.14	1.15	1.20	1.24	1.26	1.30	Aug. 14	.15	.26	.36	.42	.44	.57	.66	.84	1.01	1.02	1.02	1.02	
July 22	.22	.33	.48	.58	.78	.93	.96	.99	1.04	1.07	1.09	1.11	Aug. 17	.24	.31	.36	.40	.42	.43	.44	.49	.72	.87	.89	.90	
Aug. 15	.20	.30	.40	.51	.60	.71	.75	.82	1.16	1.33	1.42	1.44	Aug. 20-21	.16	.24	.36	.47	.66	.74	.74	.95	.95	.98	1.17	1.37	
Aug. 31	.19	.33	.37	.39	.50	.51	.52	.56	.58	.85	.86	.86	Aug. 31	.20	.30	.31	.31	.32	.32	.56	.56	.56	.57	.72		
Sept. 14	.20	.36	.43	.43	.44	.45	.45	.45	.45	.46	.46	.46	Sept. 1	.16	.26	.32	.45	.53	.69	.78	.96	1.02	1.07	1.15	1.23	
Grand Rapids													Sept. 14	.22	.33	.36	.39	.41	.42	.44	.45	.45	.68	.68	.68	.68
July 18	.16	.30	.34	.39	.58	.64	.81	.93	1.00	1.07	1.35	1.58	Saint Louis													
Aug. 16	.27	.52	.72	.92	1.08	1.23	1.32	1.37	1.52	1.57	1.62	1.65	June 20	.30	.59	.86	1.05	1.24	1.42	1.46	1.47	1.47	1.47	1.47	1.47	
Sept. 1	.48	.68	.68	.68	.69	.77	.77	.77	.77	.79	.80	.81	Aug. 4	.28	.53	.73	.82	.91	.93	.94	.94	.94	.94	.94	.94	
Nov. 17	.39	.40	.43	.44	.46	.68	.76	.81	.91	.96	1.10	1.22	Springfield AP													
Lansing Airport													Feb. 1	.20	.30	.35	.37	.46	.60	.68	.75	.82	.85	.92	1.00	
July 3	.21	.31	.37	.37	.37	.42	.61	.61	.61	.61	.61	.61	Mar. 9	.18	.23	.35	.53	.63	.74	.82	.94	1.02	1.09	1.19	1.30	
Aug. 31	.32	.41	.45	.49	.51	.55	.57	.64	.69	.69	.69	.69	June 9	.21	.33	.40	.42	.48	.50	.51	.55	.55	.55	.55	.55	
Marquette													Aug. 9	.20	.35	.50	.57	.65	.70	.70	.70	.70	.70	.70	.70	.70
July 24-25	.28	.32	.33	.34	.35	.38	.39	.39	.39	.39	.39	.40	Aug. 18	.25	.45	.65	.78	.80	.95	1.10	1.19	1.29	1.43	1.70	2.23	
July 10	.42	.82	.97	1.02	1.18	1.25	1.26	1.26	1.26	1.26	1.26	1.26	Aug. 22	.14	.25	.30	.37	.62	.80	.84	.91	.91	.91	.91	.91	
Sept. 14	.25	.46	.50	.51	.53	.54	.55	.56	.57	.58	.58	.58	MONTANA													
Muskegon Airport													Billings Airport													
July 23	.25	.30	.30	.30	.57	.65	.66	.70	.74	.74	.75	.75	Sept. 10	.40	.62	.65	.73	.77	.79	.79	.79	1.02	1.04	1.04	1.04	
Aug. 16	.32	.55	.63	.81	1.07	1.09	1.12	1.23	1.32	1.32	1.35	1.35	Butte Airport													
Sept. 18	.27	.30	.40	.48	.70	.75	.75	.75	.75	.75	.75	.75	Aug. 4	.16	.30	.36	.40	.51	.51	.51	.51	.51	.51	.51	.51	
Nov. 17	.15	.21	.36	.48	.58	.64	.70	.82	.94	1.04	1.06	1.30	Great Falls AP													
Sault Ste. Marie AP													None													
June 24	.34	.55	.71	.84	.88	.91	.92	.92	.95	.95	.95	.96	Havre													
Ypsilanti Airport													None													
July 28	.25	.30	.33	.33	.35	.35	.36	.38	.40	.40	.40	.40	Helena Airport													
July 3	.27	.40	.44	.49	.67	.72	.93	1.00	1.05	1.07	1.10	1.10	None													
Aug. 31	.25	.34	.34	.34	.40	.40	.40	.40	.40	.40	.50	.56	Missoula Airport													
Nov. 16	.25	.43	.45	.47	.47	.61	.62	.70	1.00	1.07	1.11	1.44	None													
MINNESOTA													NEBRASKA													
Duluth Airport													Grand Island AP													
June 16	.42	.53	.53	.53	.53	.55	.55	.55	.55	.55	.55	.55	Apr. 17	.26	.35	.52	.58	.96	1.03	1.06	1.06	1.06	1.06	1.06	1.06	
June 23	.24	.35	.43	.47	.53	.57	.57	.57	.57	.57	.57	.57	Apr. 20	.24	.30	.42	.45	.49	.83	.89	.89	.89	.89	.89	.89	
June 23	.52	1.03	1.34	1.49	1.77	1.93	1.97	2.10	2.14	2.26	2.34	2.41	May 21	.25	.39	.53	.59	.70	.77	.84	.88	.90	.94	.97	.97	
July 12	.25	.42	.45	.45	.46	.52	.57	.57	.57	.57	.57	.57	June 20	.18	.26	.36	.40	.40	.40	.40	.40	.40	.40	.40	.40	
July 17	.17	.30	.37	.52	.59	.62	.85	1.00	1.03	1.12	1.22	1.40	July 14	.45	.76	1.07	1.30	1.63	2.33	2.55	2.66	2.91	3.20	3.40	3.70	
July 22	.25	.45	.49	.49	.50	.50	.51	.51	.75	.90	1.00	1.00	Aug. 28	.20	.35	.45	.55	.62	.65	.67	.69	.73	.7			



Table 8-Continued

YEAR 1952

Station and date		Maximum precipitation in inches (5 to 180 minutes)											
		5	10	15	20	30	45	60	80	100	120	150	180
NEBRASKA (Cont'd)													
Omaha Airport (Cont'd)													
Aug. 14	0.15	0.25	0.36	0.40	0.48	0.50	0.53	0.57	0.68	0.73	0.83	0.85	
Aug. 19	.40	.52	.70	.81	.89	.94	1.03	1.17	1.25	1.27	1.29	1.29	
Aug. 28	.45	.63	.83	.95	1.00	1.02	1.02	1.02	1.03	1.06	1.06	1.07	
Nov. 17	.26	.47	.60	.72	.80	.84	1.35	1.45	1.53	1.57	1.63	1.67	
Scottsbluff													
June 21	.44	.76	.89	1.00	1.14	1.22	1.23	1.24	1.25	1.25	1.25	1.25	
June 24	.27	.43	.53	.64	.75	.80	.80	.81	.81	.81	.81	.81	
June 26	.37	.42	.45	.47	.48	.48	.48	.48	.48	.49	.50	.51	
Valentine													
Apr. 20	.15	.26	.32	.45	.54	.63	.65	.66	.69	.70	.71	.85	
June 7	.43	.53	.54	.54	.55	.55	.55	.57	.57	.57	.57	.57	
Aug. 2	.25	.43	.48	.55	.58	.60	.60	.60	.60	.60	.60	.60	
Aug. 7	.66	.96	1.03	1.06	1.11	1.16	1.16	1.27	1.27	1.27	1.29	1.30	
NEVADA													
Elko Airport													
						None							
Ely													
July 24	.17	.23	.32	.42	.50	.80	.87	.92	.95	1.01	1.11	1.20	
Reno Airport													
						None							
Winnemucca Airport													
						None							
NEW HAMPSHIRE													
Concord Airport													
June 26	.31	.35	.39	.40	.42	.42	.42	.42	.42	.42	.42	.42	
July 31	.38	.49	.56	.59	.60	.60	.60	.60	.60	.60	.63	.64	
Sept. 19	.30	.54	.69	.70	.70	.71	.72	.81	.83	.84	.84	.84	
NEW JERSEY													
Atlantic City													
July 18	.17	.30	.34	.34	.35	.35	.35	.35	.35	.35	.35	.35	
Aug. 2	.29	.48	.54	.60	.67	.72	.81	.82	.83	.83	.83	.85	
Aug. 7	.20	.31	.33	.35	.37	.47	.56	.60	.65	.70	.76	.83	
Aug. 8	.16	.26	.39	.45	.56	.65	.72	.81	.85	.88	.90	.91	
Aug. 13	.42	.68	.86	.90	.92	.92	.92	.92	.92	.92	.92	.92	
Newark Airport													
Mar. 4	.30	.54	.60	.63	.66	.71	.74	.76	.78	.79	.82	.83	
June 4	.38	.53	.54	.54	.54	.55	.59	.63	.77	.88	.88	.88	
June 9	.20	.30	.45	.46	.50	.50	.50	.50	.50	.50	.50	.50	
June 19	.25	.35	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	
June 29	.90	1.32	1.47	1.52	1.56	1.67	1.67	1.67	1.67	1.67	1.67	1.67	
July 4	.21	.37	.45	.54	.73	.98	1.04	1.06	1.07	1.07	1.07	1.07	
July 21	.34	.42	.46	.57	.73	.75	.75	.75	.75	.75	.75	.79	
Aug. 6	.27	.50	.65	.71	.96	1.22	1.31	1.36	1.43	1.44	1.45	1.48	
Aug. 16	.27	.37	.48	.65	.75	.84	.86	.87	.87	.87	.87	.87	
Aug. 30	.22	.38	.47	.51	.54	.66	.73	.81	.91	.97	.98	.98	
Sept. 1	.25	.27	.27	.28	.28	.42	.43	.44	.48	.51	.56	.77	
Sept. 18	.20	.32	.37	.54	.63	.64	.64	.64	.64	.64	.64	.64	
Trenton													
July 9	.19	.31	.38	.44	.58	.78	.94	1.12	1.22	1.37	1.47	1.56	
July 20	.34	.52	.61	.68	.89	1.10	1.17	1.63	1.87	1.89	1.90	1.90	
July 21	.35	.60	.82	.90	.92	.97	.98	.98	.98	.98	1.05	1.33	
Aug. 16	.38	.66	.90	1.05	1.21	1.33	1.39	1.51	1.51	1.51	1.51	1.51	
Aug. 16	.30	.45	.47	.47	.48	.48	.48	.48	.48	.48	.48	.48	
Aug. 31	.19	.36	.53	.58	.64	.66	.73	.74	.74	.74	.74	.74	
Sept. 1	.23	.35	.42	.49	.53	.66	.78	.94	1.16	1.27	1.48	1.63	
Nov. 22	.20	.36	.46	.54	.60	.68	.72	.79	.84	.87	.92	.96	
NEW MEXICO													
Albuquerque Airport													
July 14	.33	.37	.38	.40	.44	.44	.44	.44	.44	.44	.44	.44	
Roswell Airport													
Apr. 17	.20	.30	.32	.37	.42	.44	.44	.44	.44	.44	.44	.44	
July 14	.20	.31	.36	.39	.41	.42	.44	.46	.47	.47	.47	.47	
Aug. 3	.21	.35	.51	.66	.78	.85	.87	.87	.87	.87	.87	.87	
Aug. 9	.17	.30	.42	.55	.68	.76	.80	.93	1.01	1.12	1.15	1.15	
Aug. 11	.16	.28	.35	.43	.48	.57	.64	.67	.72	.72	.75	.79	
NEW YORK													
Albany Airport													
June 17	.26	.30	.45	.45	.45	.45	.45	.45	.45	.45	.45	.45	
Aug. 5	.21	.30	.40	.42	.68	.73	.73	.73	.73	.73	.73	.73	
Bear Mountain													
July 4	.24	.38	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	
Aug. 16	.35	.70	.83	.98	1.38	1.38	1.38	1.38	1.40	1.40	1.40	1.40	
Sept. 1	.20	.30	.47	.55	.83	1.25	1.26	1.46	1.64	1.81	2.11	2.27	
Binghamton Airport													
June 29	.23	.32	.34	.34	.39	.42	.44	.45	.47	.47	.48	.48	
July 9	.32	.47	.54	.56	.57	.64	.68	.70	.72	.73	.73	.73	
July 22	.28	.50	.56	.56	.56	.59	.62	.63	.63	.64	.66	.69	
July 27	.26	.43	.52	.56	.58	.58	.58	.58	.58	.58	.58	.58	
Aug. 5	.34	.57	.64	.66	.66	.66	.66	.66	.66	.66	.66	.66	
Aug. 12	.13	.26	.35	.43	.64	.66	.68	.86	1.12	1.12	1.13	1.14	
Sept. 2	.31	.39	.41	.42	.43	.45	.46	.46	.46	.46	.46	.46	
Buffalo Airport													
Jan. 17	.32	.35	.39	.44	.49	.59	.59	.59	.59	.59	.59	.59	
New York Airport													
Apr. 5	.22	.30	.34	.35	.38	.41	.41	.41	.41	.51	.59	.59	
June 11	.40	.66	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	
July 21	.42	.54	.59	.63	.68	.69	.70	.70	.70	.70	.70	.70	
Aug. 6	.25	.47	.53	.58	.63	.75	.88	1.06	1.12	1.15	1.21	1.25	
Aug. 10	.20	.30	.36	.37	.39	.39	.42	.55	.64	.72	.80	.85	
Aug. 16	.43	.67	1.00	1.16	1.19	1.22	1.23	1.24	1.24	1.24	1.24	1.24	
Oswego													
July 9	.32	.57	.85	1.06	1.17	1.19	1.20	1.21	1.21	1.24	1.30	1.31	
Aug. 10	.19	.30	.36	.41	.45	.48	.50	.52	.53	.55	.56	.57	

Station and date		Maximum precipitation in inches (5 to 180 minutes)											
		5	10	15	20	30	45	60	80	100	120	150	180
NEW YORK (Cont'd)													
Rochester Airport													
July 18	0.20	0.38	0.39	0.40	0.40	0.40	0.41	0.41	0.41	0.46	0.46	0.47	
July 20	.29	.40	.45	.47	.55	.55	.55	.55	.55	.55	.55	.55	
July 21	.34	.46	.53	.54	.55	.56	.58	.59	.60	.60	.60	.64	
Sept. 2	.40	.52	.53	.54	.55	.56	.56	.56	.56	.56	.56	.56	
Syracuse Airport													
July 9	.17	.27	.36	.44	.55	.84	.96	1.00	1.05	1.12	1.23	1.28	
July 18	.39	.55	.66	.73	.82	.88	.90	.90	.90	.90	.90	.90	
NORTH CAROLINA													
Asheville													
June 9	.37	.47	.59	.59	.60	.60	.60	.60	.60	.60	.60	.60	
June 14	.14	.25	.35	.43	.62	.84	1.01	1.23	1.23	1.23	1.23	1.23	
June 30	.31	.57	.66	.74	.97	1.02	1.03	1.04	1.04	1.05	1.05	1.05	
July 13	.17	.32	.48	.57	.60	.64	.67	.67	.67	.67	.67	.67	
July 17	.20	.40	.50	.55	.59	.59	.59	.60	.62	.62	.62	.62	
Aug. 1	.19	.36	.50	.62	.82	1.00	1.03	1.07	1.08	1.11	1.15	1.17	
Aug. 5	.20	.35	.49	.56	.60	.63	.64	.70	.73	.74	.77	.80	
Charlotte Airport													
Apr. 27	.30	.36	.40	.44	.48	.49	.64	.65	.68	.69	.69	.69	
May 24	.20	.30	.37	.40	.41	.42	.44	.47	.50	.54	.55	.55	
June 17	.45	.74	.83	.90	.97	.98	.98	.99	.99	.99	1.00	1.01	
June 28	.30	.55	.71	.79	.93	.94	.96	.96	.96	.97	.97	.97	
July 1	.20	.42	.57	.66	.72	.78	.82	.85	.85	.85	.85	.85	
July 30	.28	.38	.40	.44	.50	.52	.53	.53	.53	.53	.53	.53	
Aug. 19	.25	.50	.73	.75	.77	.77	.80	.89	.94	1.00	1.00	1.00	
Aug. 31	.23	.32	.44	.50	.67	.92	1.07	1.27	1.33	1.38	1.67	1.97	
*Greensboro AP													
May 20	.28	.30	.31	.31	.31	.31	.31	.31	.34	.37	.37	.53	
June 14	.31	.43	.43	.45	.49	.51	.52	.53	.54	.54	.54	.54	
July 9	.28	.41	.48	.50	.55	.55	.55	.55	.55	.55	.55	.55	
July 26	.46	.67	.68	.68	.81	1.24	1.34	1.35	1.36	1.36	1.36	1.36	
July 30	.28	.49	.59	.63	.68	.8							



## EXCESSIVE SHORT DURATION RAINFALL

YEAR 1952

Table 8-Continued

Station and date		Maximum precipitation in inches (5 to 180 minutes)											
		5	10	15	20	30	45	60	80	100	120	150	180
OHIO													
Cincinnati		0.27	0.40	0.50	0.57	0.66	0.70	0.72	0.73	0.73	0.74	0.81	0.82
May 24		.52	.86	1.27	1.30	1.37	1.40	1.40	1.40	1.86	2.14	2.14	2.14
June 25		.25	.32	.44	.46	.47	.62	.75	.77	.77	.77	.78	1.30
July 15		.26	.31	.36	.37	.41	.41	.44	.51	.51	.51	.51	.51
July 16		.20	.35	.47	.58	.61	.61	.61	.61	.61	.61	.61	.61
Aug. 12		.18	.25	.27	.28	.50	.65	.71	.78	.83	.83	.83	.83
Aug. 14		.45	.65	.71	.74	.80	.94	.94	.95	1.05	1.05	1.05	1.06
Sept. 2		.21	.31	.36	.40	.46	.51	.52	.57	.68	.71	.77	.80
Cleveland Airport													
June 8		.25	.25	.30	.32	.32	.32	.32	.32	.32	.32	.32	.32
Aug. 1		.18	.34	.34	.34	.34	.34	.34	.34	.41	.47	.47	.47
Columbus Airport													
Jan. 26		.25	.29	.30	.32	.35	.41	.57	.61	.67	.73	.87	1.15
May 10		.18	.31	.42	.52	.63	.64	.65	.66	.66	.69	.79	.79
May 25		.23	.38	.39	.39	.39	.39	.46	.49	.49	.49	.49	.49
June 26		.15	.25	.35	.46	.50	.75	.81	.81	.81	.81	.81	.81
June 29		.25	.32	.32	.32	.32	.32	.32	.36	.36	.36	.36	.36
July 8		.48	.78	1.12	1.41	1.78	1.83	1.83	1.83	1.83	1.83	1.83	1.84
Sept. 1		.32	.53	.53	.53	.54	.55	.55	.64	.65	.65	.66	.66
Dayton Airport													
Jan. 15		.21	.28	.32	.42	.51	.52	.52	.53	.53	.54	.54	.54
Jan. 26		.12	.21	.40	.47	.57	.69	.73	.79	.81	.84	.88	.92
May 27		.15	.23	.35	.44	.59	.68	.84	.87	.87	.87	.87	.89
June 3		.19	.29	.32	.41	.42	.42	.42	.42	.42	.42	.42	.42
June 26		.30	.40	.63	.68	1.03	1.15	1.71	1.81	1.81	1.81	1.81	1.81
Aug. 16		.23	.38	.47	.49	.50	.52	.54	.56	.57	.64	.67	.69
Sept. 1		.20	.45	.52	.65	.71	.74	.77	.78	.78	.79	.87	.84
Sandusky													
May 23		.30	.36	.43	.46	.51	.73	.75	.76	.76	.77	.77	.78
June 29		.35	.37	.42	.47	.57	.57	.62	.62	.64	.70	1.29	1.29
July 3		.25	.38	.55	.58	.59	.59	.59	.59	.59	.59	.59	.59
Sept. 18		.28	.33	.41	.42	.43	.46	.48	.48	.50	.51	.52	.53
Toledo Airport													
July 19		.26	.38	.56	.63	.66	.74	.78	.95	1.03	1.10	1.24	1.27
July 22		.35	.56	.66	.75	.77	.78	.79	.80	.80	.80	.80	.81
Aug. 16		.41	.50	.56	.63	.63	.68	.58	.69	.69	.69	.69	.69
Youngstown Airport													
Jan. 15		.10	.20	.30	.35	.50	.65	.70	.70	.70	.71	.71	.71
July 3		.25	.30	.40	.40	.41	.42	.42	.44	.47	.50	.52	.54
July 8		.15	.28	.39	.45	.64	.86	.95	1.07	1.30	1.56	1.67	1.70
July 18		.48	.50	.56	.50	.50	.60	.60	.60	.60	.60	.60	.60
Aug. 9		.25	.45	.65	.70	.85	1.04	1.05	1.06	1.11	1.22	1.28	1.28
Aug. 15		.25	.35	.60	.70	.73	.73	.73	.73	.73	.73	.73	.75
Aug. 16		.35	.35	.35	.35	.40	.40	.40	.40	.40	.40	.40	.40
Sept. 15		.15	.20	.28	.35	.52	.55	.55	.55	.55	.62	.62	.63
OKLAHOMA													
Oklahoma City													
May 17		.18	.23	.35	.38	.39	.40	.49	.50	.51	.57	.64	.67
July 1		.19	.37	.42	.44	.55	.57	.58	.60	.62	.63	.65	.68
July 13		.20	.38	.45	.46	.47	.66	.73	.74	.74	.78	.85	.90
Aug. 8		.30	.56	.69	.81	.89	1.05	1.46	1.67	1.71	1.77	1.78	1.81
Tulsa Airport													
Apr. 19		.19	.36	.39	.42	.48	.58	.77	.79	.79	.86	.89	1.06
May 12		.17	.26	.43	.51	.53	.54	.56	.57	.62	.66	.66	.66
May 23		.25	.50	.65	.75	1.00	1.03	1.04	1.08	1.10	1.11	1.15	1.24
June 5		.30	.40	.45	.53	.85	1.10	1.38	1.56	1.82	2.00	2.35	2.64
Nov. 17		.30	.43	.48	.55	.63	.85	.87	.87	.87	.88	.88	.88
OREGON													
Baker													
June 19													
Burns													
Eugene Airport													
Meacham Airport													
Pendleton													
Portland													
Roseburg													
Sexton Summit													
Troutdale													
PENNSYLVANIA													
Erie													
Aug. 4		.43	.75	.98	1.00	1.17	1.24	1.25	1.25	1.25	1.25	1.25	1.25
Allentown Airport													
July 10		.37	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37
July 18		.30	.60	.85	1.15	1.45	1.87	2.20	2.35	2.43	2.51	2.63	2.67
July 20		.30	.50	.59	.60	.60	.61	.62	.62	.63	.63	.63	.63
Aug. 21		.22	.35	.45	.65	.88	1.03	1.33	1.38	1.38	1.41	1.45	1.46
Sept. 1		.24	.35	.40	.43	.49	.57	.58	.59	.86	.89	.90	.91
Sept. 19		.20	.33	.50	.65	.90	1.17	1.45	1.70	1.90	2.20	2.45	2.73
Oct. 2		.37	.47	.54	.59	.62	.68	.75	.90	1.00	1.03	1.04	1.04
Harrisburg Airport													
Apr. 1		.28	.28	.28	.28	.28	.28	.28	.28	.29	.29	.30	.36
May 10		.23	.35	.39	.41	.43	.46	.47	.50	.51	.51	.54	.55
May 25		.28	.50	.51	.52	.54	.55	.56	.58	.59	.60	.60	.60
July 8		.16	.27	.36	.43	.56	.76	.82	.90	1.03	1.06	1.06	1.07
Aug. 2		.20	.37	.45	.47	.50	.52	.54	.55	.56	.57	.60	.64
Sept. 1		.21	.33	.41	.50	.55	.67	.96	1.37	1.69	1.81	2.20	2.40
Philadelphia													
May 10		.40	.50	.54	.54	.71	.54	.54	.55	.55	.55	.55	.55
May 11		.18	.29	.38	.55	.71	.76	.81	.83	.84	.85	.89	.92
July 9		.34	.42	.46	.50	.55	.58	.63	.69	.76	.82	.92	1.26
July 9		.18	.25	.40	.41	.44	.45	.45	.46	.47	.50	.50	.56
PENNSYLVANIA (Cont'd)													
Philadelphia (Cont'd)													
July 19		0.20	0.28	0.40	0.45	0.57	0.60	0.61	0.61	0.61	0.61	0.61	0.61
July 21		.26	.32	.34	.35	.35	.36	.36	.36	.36	.36	.36	.36
July 27		.29	.42	.45	.45	.45	.45	.45	.45	.45	.48	.48	.48
Aug. 6		.20	.31	.37	.47	.57	.66	.69	.70	.81	.91	1.14	1.44
Aug. 16		.21	.26	.32	.42	.63	.79	.81	.81	.81	.81	.81	.81
Sept. 18		.40	.50	.54	.54	.54	.55	.55	.55	.55	.55	.55	.55
*Pittsburgh AP													
May 25		.35	.65	.95	.95	.95	.96	.98	.99	.99	.99	.99	.99
June 22		.35	.70	.80	.82	.90	.97	.98	.98	.98	.98	1.01	1.55
July 28		.26	.29	.31	.32	.34	.40	.41	.41	.41	.41	.41	.41
Aug. 16		.24	.34	.58	.68	.86	1.08	1.10	1.20	1.21	1.37	1.58	1.58
Aug. 16		.43	.45	.54	.57	.57	.57	.57	.57	.57	.57	.57	.57
Pittsburgh													
June 22		.55	.92	1.11	1.21	1.39	1.50	1.55	1.56	1.56	1.56	1.59	1.97
June 22		.25	.31	.34	.39	.41	.41	.41	.41	.41	.47	.79	.79
June 23		.29	.45	.53	.58	.79	.92	1.10	1.14	1.17	1.18	1.20	1.22
Aug. 16		.19	.31	.37	.43	.47	.60	.83	1.02	1.05	1.16	1.23	1.65
Reading													
June 4		.27	.35	.37	.39	.45	.47	.47	.47	.47	.47	.47	.47
July 17		.26	.27	.28	.28	.29	.29	.29	.29	.29	.29	.29	.29
July 24		.24	.41	.45	.58	.68	.76	.82	.98	1.07	1.11	1.27	1.52
July 9		.24	.42	.53	.60	.73	1.00	1.32	1.40	1.44	1.45	1.47	1.53
Sept. 1		.34	.61	.78	.98	1.24	1.51	1.71	1.94	2.14	2.48	2.70	2.88
Sept. 19		.34	.49	.59	.64	.68	.71	.78	.93	.99	1.01	1.01	1.01
Oct. 2		.30	.51	.67	.71	.77	.80	.85	.91	.99	1.09	1.16	1.17
Scranton													
July 9		.33	.55	.74	.89	1.03	1.21	1.28	1.33	1.38	1.45	1.53	1.60
July 15		.44	.62	.74	.79	.84	.85	.85	.85	.85	.85	.85	.85
Aug. 2		.24	.37	.47	.56	.64	.75	.89	.93	.96	.99	1.00	1.01
Aug. 5		.28	.34	.34	.34	.34	.41	.51	.51	.62	.65	.65	.67
Aug. 16		.43	.69	.78	.81	.82	.84	.86	.90	.91	.92	.92	.92
RHODE ISLAND													
Providence													
May 12		.20	.34	.36	.37	.40	.58	.70	.90	.94	.96	1.00	1.40
June 26		.20	.30	.44	.45	.45	.45	.45	.45	.46	.46	.46	.46
Aug. 5		.23	.31	.31	.33	.36	.46	.49	.53	.53	.53	.53	.53
Aug. 1		.29	.33	.39	.47	.55	.70	.82	.92	.95	.95	1.00	1.05
Aug. 17		.28	.54	.65	.75	.80	.90	1.05	1.06	1.12	1.12	1.15	1.20
Oct. 7		.3											

\* Allegheny County Airport; Greater Pittsburgh Airport after September 15, 1952.



Table 8—Continued

## EXCESSIVE SHORT DURATION RAINFALL

YEAR 1952

Station and date	Maximum precipitation in inches (5 to 180 minutes)													Station and date	Maximum precipitation in inches (5 to 180 minutes)												
	5	10	15	20	30	45	60	80	100	120	150	180	5		10	15	20	30	45	60	80	100	120	150	180		
TENNESSEE (Cont'd)														TEXAS (Cont'd)													
Knoxville AP (Cont'd)														Port Arthur													
Aug. 6	0.39	0.73	1.02	1.19	1.46	1.59	1.64	1.71	1.76	1.79	1.86	1.86		Jan. 27	0.18	0.27	0.36	0.48	0.56	0.63	0.65	0.66	0.73	0.82	0.82	0.84	
Aug. 10	.25	.30	.37	.49	.58	.64	.65	.67	.67	.73	.75	.75		Feb. 1	.24	.37	.48	.55	.60	.74	.94	1.04	1.13	1.20	1.29	1.39	
Aug. 16	.22	.31	.33	.46	.70	1.10	1.13	1.13	1.13	1.13	1.13	1.13		Feb. 14	.24	.43	.58	.75	.95	1.28	1.31	1.38	1.39	1.43	1.54	1.64	
Memphis Airport														Feb. 22	.22	.32	.39	.42	.47	.52	.56	.69	.74	.78	.83	.89	
Jan. 26-27	.19	.36	.40	.40	.40	.40	.43	.53	.61	.69	.85	.98		Mar. 30	.36	.65	.86	1.10	1.35	1.79	2.02	2.12	2.17	2.25	2.49	2.69	
Feb. 19-20	.21	.34	.41	.47	.56	.64	.66	.71	.85	1.00	1.19	1.29		Apr. 3	.46	.77	.99	1.03	1.07	1.13	1.20	1.23	1.23	1.24	1.51		
Mar. 10	.28	.34	.38	.39	.40	.44	.49	.58	.62	.69	.71	.77		Apr. 10	.20	.31	.39	.43	.60	.67	.71	.81	.90	.93	.97	1.05	
Apr. 12	.34	.44	.46	.49	.53	.58	.68	.76	.81	.88	.95	1.04		Apr. 12	.28	.46	.56	.66	.78	.92	1.06	1.22	1.37	1.47	1.51	1.56	
May 10	.68	.98	1.19	1.24	1.25	1.25	1.27	1.30	1.33	1.35	1.40	1.42		Apr. 23	.30	.38	.43	.43	.44	.46	.53	.68	.74	.84	.98	1.23	
May 23	.21	.35	.47	.50	.58	.64	.86	1.03	1.09	1.14	1.16	1.18		May 2	.17	.33	.42	.53	.57	.67	.70	.70	.70	.70	.70	.70	
June 30	.30	.36	.42	.43	.44	.44	.44	.44	.44	.44	.44	.44		May 28	.16	.28	.37	.41	.48	.55	.57	.59	.61	.62	.70	.74	
July 16	.20	.35	.45	.49	.55	.57	.59	.60	.60	.60	.60	.60		June 30	.23	.39	.51	.55	.62	.63	.63	.66	.66	.66	.66	.66	
July 29-30	.26	.46	.56	.71	.88	1.21	1.36	1.37	1.37	1.38	1.41	1.44		July 6	.24	.33	.48	.60	.68	.73	.74	.74	.75	.75	.81	.81	
Aug. 5	.18	.31	.40	.49	.68	.84	.92	1.17	1.33	1.38	1.44	1.51		July 12	.19	.28	.36	.44	.47	.47	.47	.47	.47	.47	.47	.47	
Aug. 6	.21	.37	.48	.53	.63	.68	.73	.73	.78	.81	.81	.81		July 17	.19	.34	.41	.42	.52	.74	.80	.80	.80	.80	.85	1.02	
Sept. 2	.18	.26	.30	.43	.45	.52	.81	.87	.96	1.05	1.09	1.19		July 31	.29	.32	.35	.45	.46	.47	.48	.48	.48	.48	.48	.48	
Dec. 4	.21	.32	.35	.36	.40	.46	.51	.57	.61	.62	.63	.63		Aug. 21	.22	.32	.34	.36	.41	.42	.42	.45	.45	.45	.45	.45	
Nashville Airport														Sept. 18	.45	.54	.59	.60	.61	.75	.83	.89	.96	.99	1.01	1.01	1.01
Mar. 22	.33	.55	.85	.85	1.08	1.09	1.38	1.51	1.60	1.61	1.90	2.00		Nov. 9	.29	.49	.68	.74	.84	.94	.98	1.02	1.09	1.13	1.20	1.31	
Mar. 22	.35	.56	.58	.65	.80	.94	1.14	1.33	1.47	1.47	1.52	1.53		Dec. 4	.21	.29	.37	.42	.56	.70	.95	1.25	1.49	1.66	2.11	2.46	
Mar. 22	.22	.40	.41	.45	.52	.63	.66	.72	.77	.84	.85	.87		Dec. 19	.19	.28	.32	.35	.45	.66	.75	.83	.87	.91	.94	.97	
TEXAS														San Antonio AP													
Abilene Airport														Feb. 22	.18	.33	.42	.43	.45	.45	.46	.47	.48	.48	.48	.48	.48
Mar. 17	.29	.37	.50	.52	.54	.54	.54	.54	.54	.54	.54	.54		Apr. 9	.20	.32	.42	.48	.52	.58	.60	.64	.73	.84	.86	.91	
May 23	.27	.36	.48	.55	.61	.75	1.12	1.19	1.27	1.61	1.69	1.70		May 18	.28	.52	.55	.55	.55	.69	.69	.69	.70	.78	.84	.89	
Nov. 9	.16	.25	.39	.43	.68	.74	.85	.85	.92	1.00	1.11	1.12		July 17	.20	.38	.49	.56	.67	.83	.94	1.06	1.09	1.17	1.26	1.29	
Nov. 24	.25	.28	.29	.30	.30	.30	.30	.30	.30	.32	.34	.34		Nov. 18	.29	.42	.48	.51	.55	.61	.64	.68	.82	.89	1.01	1.01	
Amarillo Airport														Dec. 29-30	.13	.23	.36	.44	.51	.69	.76	.86	1.06	1.13	1.24	1.35	
Apr. 17-18	.18	.32	.47	.57	.61	.64	.67	.68	.69	.73	.76	.77		UTAH													
May 31	.20	.30	.42	.50	.55	.58	.64	.69	.74	.77	.80	.80		Milford							None						
July 16	.35	.48	.57	.61	.62	.63	.63	.64	.64	.64	.64	.64		Salt Lake City							None						
Austin Airport														VERMONT													
Apr. 9	.16	.26	.37	.47	.55	.58	.62	.63	.74	.78	.81	.83		Burlington Airport													
May 1	.31	.43	.47	.50	.54	.57	.60	.62	.65	.69	.70	.70		June 17	.33	.44	.50	.52	.52	.52	.52	.52	.52	.52	.52	.52	
May 2	.29	.51	.68	.73	.78	.80	.81	.81	.81	.81	.81	.81		Aug. 16	.25	.30	.30	.33	.38	.46	.54	.59	.65	.69	.71	.73	
May 18	.22	.33	.38	.40	.43	.44	.44	.45	.45	.49	.53	.54		VIRGINIA													
May 27	.29	.52	.63	.66	.71	.74	.79	.95	1.00	1.02	1.09	1.22		Cape Henry													
June 5	.42	.66	.83	.95	1.09	1.16	1.17	1.18	1.18	1.19	1.19	1.19		Feb. 3	.18	.31	.34	.36	.37	.38	.40	.41	.45	.46	.48	.48	
Brownsville Airport														June 29	.25	.42	.50	.54	.58	.58	.61	.65	.70	.74	.76	.77	
May 28	.29	.48	.60	.65	.75	.90	.94	.98	1.01	1.01	1.01	1.01		July 9	.25	.38	.40	.40	.41	.41	.41	.41	.41	.41	.47		
June 7	.33	.51	.65	.68	.70	.70	.70	.70	.70	.70	.70	.70		July 30	.30	.57	.79	.94	1.23	1.33	1.38	1.46	1.51	1.56	1.57	1.57	
June 8	.31	.56	.75	1.01	1.31	1.49	1.57	1.61	1.63	1.63	1.63	1.63		Aug. 2	.30	.36	.43	.47	.47	.67	.83	.89	.90	.91	.92	.93	
July 1	.16	.31	.41	.45	.45	.45	.45	.45	.45	.45	.45	.45		Aug. 7	.17	.23	.34	.44	.60	.81	.82	.83	.84	.84	.89	.89	
Sept. 11	.36	.60	.76	.87	1.02	1.20	1.43	2.03	2.28	2.47	2.67	2.72		Aug. 8	.29	.44	.47	.49	.55	.86	.97	1.05	1.09	1.11	1.12	1.12	
Sept. 20	.19	.37	.45	.54	.72	.94	1.03	1.15	1.28	1.32	1.32	1.45		Aug. 8	.31	.58	.75	.89	1.02	1.05	1.05	1.05	1.05	1.07	1.07	1.07	
Oct. 7	.30	.49	.58	.73	1.04	1.37	1.64	1.78	1.78	1.78	1.78	1.78		Aug. 13	.35	.70	.95	1.11	1.15	1.19	1.20	1.20	1.20	1.20	1.20	1.20	
Corpus Christi AP														Aug. 20	.31	.57	.78	.86	.93	1.04	1.08	1.09	1.09	1.12	1.13	1.14	
Apr. 9	.23	.43	.51	.63	.73	.74	.74	.74	.74	.74	.74	.74		Nov. 21	.17	.28	.34	.41	.60	.73	.89	1.06	1.20	1.38	1.57	1.69	
Apr. 22	.35	.57	.79	.90	1.34	1.57	1.87	1.93	1.93	1.93	1.93	1.93		Lynchburg Airport													
May 18	.22	.35	.43	.48	.56	.61	.62	.93	1.01	1.03	1.03	1.03		May 24	.19	.33	.37	.39	.39	.40	.40	.40	.40	.40	.40	.52	
May 28	.38	.57	.66	.70	.74	.77	.88	.91	.91	.91	.91	.91		June 22	.41	.66	.75	.80	1.12	1.46	1.55	1.56	1.64	1.64	1.67	1.67	
July 18	.37	.60	.70	.99	1.12	1.20	1.32	1.40	1.48	1.54	1.59	1.61		June 27	.20	.34	.47	.54	.57	.61	.62	.62	.62	.62	.62	.62	
July 18	.42	.50	.53	.55	.56	.57	.92	.96	.97	---	---	---		July 17	.25	.41	.50	.71	.98	1.15	1.19	1.19	1.22	1.25	1.29	1.32	
Sept. 3	.36	.58	.70	.74	.74	.88	.93	.95	.95	.95	.95	.95		July 29	.27	.42	.47	.57	.66	.69	.83	.89	.90	.90	.90	.90	
Sept. 11	.32	.53	.55	.57	.59	.85	1.00	1.31	1.36	1.66	1.68	1.69		July 30	.16	.30	.38	.48	.55	.57	.58	.58	.59	.59	.60	.61	
Sept. 15	.53	.72	.83	.88	.95	.97	.98	1.03	1.04	1.04	1.04	1.04		Aug. 4	.22	.36	.36	.36	.37	.37	.37	.47	.47	.48	.48	.48	
Sept. 18	.21	.29	.42	.51	.60	.66	.67	.67	.67	.70	.73	.74		Aug. 5	.20	.30	.37										



## EXCESSIVE SHORT DURATION RAINFALL

Table 8-Continued

YEAR 1952

Station and date	Maximum precipitation in inches (5 to 180 minutes)													
	5	10	15	20	30	45	60	80	100	120	150	180		
WEST VIRGINIA														
Elkins Airport														
May 9	0.25	0.30	0.49	0.49	0.50	0.51	0.51	0.57	0.62	0.64	0.64	0.64		
May 25	.32	.40	.41	.41	.43	.44	.44	.47	.48	.48	.49	.49		
June 10	.17	.27	.31	.42	.53	.54	.55	.55	.55	.55	.55	.55		
June 14	.20	.28	.41	.48	.57	.70	.74	.85	.85	.85	.85	.85		
June 24	.18	.30	.38	.43	.47	.48	.48	.48	.48	.48	.48	.48		
June 29	.28	.29	.29	.30	.30	.30	.31	.32	.32	.32	.32	.34		
July 4	.18	.30	.39	.45	.47	.50	.59	.63	.85	.90	1.17	1.18		
July 16	.28	.40	.68	.70	.71	1.10	1.25	1.26	1.27	1.27	1.27	1.27		
Aug. 12	.20	.35	.43	.45	.65	.65	.65	.65	.65	.65	.65	.65		
Aug. 16	.30	.36	.47	.48	.59	.59	.59	.59	.59	.59	.63	.63		
Huntington														
May 20	.17	.28	.35	.37	.39	.42	.43	.48	.50	.55	.66	.70		
June 10	.32	.46	.50	.51	.51	.51	.51	.53	.53	.53	.53	.53		
June 10	.23	.32	.33	.34	.34	.34	.34	.34	.35	.35	.35	.35		
June 30	.26	.34	.43	.50	.56	.60	.69	.72	.75	.93	1.23	1.36		
July 4	.21	.35	.42	.45	.47	.50	.51	.54	.55	.57	.57	.57		
Aug. 4	.30	.34	.34	.34	.34	.34	.34	.34	.34	.34	.34	.34		
Aug. 5	.20	.30	.33	.36	.36	.36	.36	.36	.36	.36	.36	.36		
Aug. 12	.23	.38	.50	.51	.54	.87	1.00	1.00	1.01	1.01	1.01	1.10		
Aug. 15	.27	.31	.31	.31	.31	.34	.34	.41	.42	.44	.44	.44		
Aug. 16	.35	.65	.85	1.02	1.05	1.07	1.07	1.07	1.07	1.07	1.07	1.07		
Parkersburg														
June 29	.38	.61	.62	.65	.69	.79	1.08	1.17	1.28	1.40	1.45	1.45		
June 30	.27	.40	.55	.64	.80	.90	.95	.96	.97	.97	1.03	1.58		
July 16	.37	.48	.49	.49	.50	.50	.50	.50	.50	.50	.50	.50		
Aug. 6	.23	.38	.48	.71	.81	.81	.93	.96	.96	.96	.96	.96		
Aug. 16	.19	.32	.33	.33	.33	.33	.33	.33	.35	.35	.35	.35		
WISCONSIN														
Green Bay Airport														
June 28	.20	.37	.48	.60	.62	.65	.66	.74	.74	.74	.74	.74		
July 2	.29	.45	.48	.49	.49	.49	.49	.49	.49	.49	.49	.49		
July 2	.24	.40	.54	.58	.74	.83	.94	1.03	1.10	1.22	1.33	1.36		
La Crosse Airport														
June 2	.40	.63	.66	.66	.66	.66	.66	.66	.66	.66	.66	.66		
June 23	.32	.59	.76	.83	.98	1.13	1.14	1.15	1.18	1.56	1.88	2.12		
July 19	.47	.63	1.10	1.25	1.70	1.90	2.02	2.08	2.16	2.22	2.27	2.35		
July 27	.33	.53	.70	.80	.95	1.00	1.02	1.06	1.06	1.06	1.06	1.07		
Aug. 1	.43	.80	.93	.95	.95	.95	1.12	1.24	1.24	1.24	1.24	1.24		
Aug. 8	.24	.45	.58	.62	.62	.75	.88	.89	.89	.89	.98	.99		
Madison														
May 25	.18	.34	.49	.58	.68	.70	.70	.70	.70	.70	.70	.71		
June 11	.28	.37	.46	.52	.58	.60	.65	.67	.68	.70	.72	.77		
July 14	.19	.36	.53	.64	.83	.95	1.00	1.05	1.12	1.19	1.23	1.25		
July 17-18	.16	.31	.43	.55	.78	.87	1.27	1.33	1.38	1.39	1.47	1.54		
July 20	.25	.32	.40	.51	.54	.55	.57	.57	.57	.57	.57	.57		
July 27-28	.35	.37	.40	.43	.58	.74	.85	.86	.96	1.00	1.10	1.38		
Aug. 1-2	.21	.32	.42	.52	.68	.76	.87	.94	1.19	1.40	1.41	1.46		
Aug. 20	.33	.52	.58	.62	.65	.68	.70	.72	.74	.76	.80	.90		
Aug. 29	.27	.43	.57	.63	.76	.81	.84	.87	.89	.89	.89	.89		
Milwaukee														
July 14	.35	.65	.85	.90	1.00	1.20	1.25	1.28	1.30	1.36	1.38	1.39		
WYOMING														
Cheyenne Airport														
Aug. 3	.17	.37	.44	.46	.49	.50	.50	.50	.56	.59	.63	.63		
Aug. 4	.33	.42	.43	.46	.46	.46	.46	.46	.46	.46	.46	.46		
Lander Airport						None								
Rock Springs AP						None								
Sheridan Airport														
Aug. 27	.20	.30	.32	.33	.33	.33	.33	.34	.34	.40	.44	.44		
ALASKA														
Anchorage Airport						None								
Annette Airport						None								
Juneau Airport						None								
PUERTO RICO														
San Juan Airport														
Feb. 13	.17	.29	.35	.38	.45	.64	.76	.90	.97	1.14	1.23	1.44		
Apr. 23	.30	.55	.76	.85	.87	.91	.91	.91	.93	.97	.97	.97		
Apr. 23	.33	.53	.53	.53	.53	.53	.53	.53	.53	.54	.58	.61		
Apr. 25	.31	.46	.63	.79	1.00	1.04	1.14	1.14	1.15	1.28	1.32	1.32		
May 6	.29	.55	.58	.61	.63	.64	.64	.65	.67	.87	.91	.95		
May 8	.16	.27	.36	.38	.55	.74	.86	.88	.89	.89	.90	.90		
May 9	.22	.35	.44	.46	.51	.51	.51	.51	.51	.51	.51	.51		
May 19	.16	.28	.37	.43	.51	.58	.59	.59	.59	.59	.59	.59		
May 27	.25	.39	.40	.45	.46	.68	.85	.96	.96	.96	1.29	1.43		
May 28	.40	.73	.92	1.10	1.50	1.79	1.79	1.79	1.79	1.79	1.79	1.79		
June 19	.25	.36	.46	.54	.66	.69	.72	.73	.73	.78	.80	.80		
June 20	.34	.37	.41	.41	.41	.41	.42	.42	.42	.42	.42	.42		
June 29	.43	.66	.91	1.14	1.23	1.48	1.58	1.81	2.06	2.13	2.67	2.97		
July 12	.16	.27	.38	.42	.46	.50	.50	.53	.60	.64	.67	.69		
July 16	.27	.42	.50	.50	.60	.64	.65	.65	.65	.65	.65	1.16		
July 18	.21	.31	.35	.37	.37	.38	.38	.38	.38	.38	.38	.38		
July 23	.21	.31	.32	.32	.37	.51	.51	.51	.51	.52	.52	.52		
Aug. 11	.18	.25	.32	.37	.40	.68	.74	.96	.96	.96	.96	.96		
Aug. 21	.25	.37	.45	.56	.78	.84	.87	.90	.90	.90	.90	.90		
Sept. 17	.21	.28	.35	.36	.36	.36	.36	.36	.39	.39	.39	.39		
Sept. 18	.37	.50	.57	.59	.61	.61	.62	.63	.63	.63	.63	.63		
Sept. 21	.29	.36	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37		
Sept. 22	.24	.30	.30	.31	.31	.31	.31	.31	.31	.36	.41	.41		
Sept. 23	.36	.46	.50	.51	.51	.51	.51	.51	.51	.51	.51	.51		
Sept. 24	.27	.44	.45	.50	.60	.62	.65	.65	.65	.65	.65	.66		
Oct. 3	.43	.53	.58	.59	.64	.66	.67	.72	.89	.89	.89	.89		
Oct. 13	.34	.52	.66	.73	.74	.74	.75	.75	.86	1.32	1.32	1.32		
Oct. 26	.38	.47	.58	.63	.64	1.03	1.23	1.23	1.23	1.23	1.23	1.23		
Oct. 27	.29	.31	.40	.41	.42	.42	.42	.42	.42	.42	.42	.42		
Oct. 29	.18	.27	.38	.39	.39	.39	.39	.39	.39	.39	.39	.39		
Nov. 8	.26	.39	.47	.59	.82	1.15	1.42	1.53	1.55	1.93	2.14	2.53		
PUERTO RICO (Cont'd)														
San Juan AP (Cont'd)														
Nov. 15	0.25	0.35	0.40	0.42	0.42	0.42	0.42	0.46	0.47	0.47	0.47	0.47		
Nov. 19	.50	.75	.99	1.16	1.32	1.49	1.64	1.72	2.17	2.27	2.27	2.27		
San Juan														
May 9	.20	.44	.51	.51	.51	.52	.52	.52	.52	.52	.52	.52		
May 23	.28	.29	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30		
May 28	.25	.45	.65	.90	1.23	1.67	1.70	1.70	1.70	1.70	1.72	1.72		
Aug. 11	.25	.35	.38	.38	.40	.48	.52	.58	.60	.62	.68	1.22		
Aug. 31	.25	.40	.55	.62	.81	1.02	1.13	1.18	1.24	1.27	1.30	1.30		
Sept. 18	.26	.40	.52	.75	.82	.83	.84	.86	.86	.86	.86	.86		
Oct. 9	.24	.59	.72	.73	.74	.75	.76	.80	.85	.86	.86	.93		
Oct. 13	.21	.39	.40	.40	.42	.49	.52	.53	.53	.53	.53	.53		
Oct. 26	.22	.34	.45	.63	.90	1.09	1.38	1.62	1.63	1.63	1.64	1.64		
Oct. 31	.20	.35	.36	.37	.38	.39	.40	.40	.40	.40	.40	.40		
Nov. 3	.25	.35	.35	.36	.37	.37	.37	.37	.37	.37	.37	.37		
Nov. 4-5	.35	.60	.70	.87	.90	1.28	1.49	1.50	1.51	1.54	1.55	1.60		
Nov. 8	.23	.25	.33	.50	.56	.79	.83	.93	1.10	1.22	1.51	2.00		
Nov. 15	.22	.30	.38	.39	.40	.42	.44	.47	.49	.49	.49	.49		
Nov. 17	.25	.40	.41	.43	.51	.51	.52	.75	.77	.78	.78	.78		
Nov. 19	.32	.45	.55	.65	.73	1.00	1.31	1.82	2.23	2.27	2.28	2.28		
Santa Isabel AP														
Jan. 30	.25	.43	.55	.55	.55	.56	.63	.63	.63	.63	.63	.64		
Apr. 28	.18	.20	.26	.36	.44	.68	.88	.95	1.23	1.32	1.40	1.48		
June 23	.26	.40	.43	.45	.49	.54	.62	.63	.64	.83	.84	.84		
June 26	.22	.32	.38	.42										



Table 9

## SUNSHINE, AMOUNT AND PERCENT

YEAR 1952

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
ALABAMA																										
Birmingham	97	31	127	40	193	52	230	59	245	57	297	69	332	76	207	50	251	68	275	78	177	57	174	56	2605	58
Mobile CO	118	36	128	40	185	50	283	73	284	67	335	79	248	58	248	60	185	50	298	84	160	50	106	33	2578	58
Montgomery	128	40	154	48	246	66	298	77	298	70	371	85	344	79	268	65	234	63	273	77	195	62	151	48	2960	66
ARIZONA																										
Phoenix CO	221	70	280	88	301	81	324	83	417	97	418	97	405	93	368	89	340	92	342	97	237	76	232	75	3885	87
Prescott	179	57	259	82	262	71	287	73	398	92	405	94	359	82	306	74	294	79	328	93	218	70	198	64	3495	78
Tucson	229	72	281	87	302	81	308	79	381	89	391	92	342	79	306	74	331	89	344	97	242	76	255	81	3712	83
Yuma	272	85	291	91	333	90	354	91	426	99	425	99	407	93	403	98	351	95	337	96	280	89	260	83	4139	92
ARKANSAS																										
Ft. Smith	99	32	133	42	219	59	207	53	270	62	377	87	301	68	269	64	302	81	319	91	139	45	137	45	2772	61
Little Rock	93	30	159	50	222	60	229	58	332	77	406	94	354	80	325	78	318	86	313	89	143	46	152	50	3046	67
CALIFORNIA																										
Eureka CO	83	28	115	37	164	44	204	51	268	60	224	50	229	50	218	51	148	39	100	29	169	57	30	10	1952	44
Los Angeles CO	189	59	252	79	258	70	235	60	346	80	294	68	368	84	360	87	321	86	264	75	207	66	198	64	3292	73
Red Bluff	94	31	182	59	241	65	310	78	400	90	345	77	412	90	418	98	341	91	290	84	235	79	83	28	3351	75
Sacramento	80	26	138	44	206	56	243	61	379	86	361	81	400	89	404	96	325	87	287	83	183	61	30	11	3036	68
San Diego	183	57	220	69	227	61	205	53	277	65	263	61	305	70	273	66	264	71	197	56	195	62	221	71	2830	64
San Francisco CO	107	35	153	49	252	68	257	65	349	79	289	66	235	52	243	57	282	76	149	43	217	71	103	35	2636	59
COLORADO																										
Denver	208	69	220	71	255	69	271	68	282	63	356	79	318	70	294	69	296	79	283	82	161	54	170	58	3114	70
Grand Junction	129	43	184	59	157	42	270	68	325	73	349	78	325	72	286	68	317	85	332	96	177	59	151	51	3002	66
Pueblo	196	64	199	64	199	54	239	60	340	74	383	86	379	84	323	77	302	81	325	94	242	80	234	79	3261	73
CONNECTICUT																										
Hartford	134	45	199	64	197	53	183	46	270	60	320	70	370	80	270	63	255	68	245	71	138	47	126	44	2707	61
New Haven	142	48	195	63	186	50	187	47	247	55	294	65	349	76	268	62	268	72	246	72	151	51	141	49	2674	59
FLORIDA																										
Apalachicola	168	52	160	49	185	50	306	79	291	69	328	78	300	70	175	43	156	42	234	66	212	66	153	48	2668	59
Jacksonville	210	65	172	53	202	54	253	65	292	69	327	78	313	73	255	62	177	48	174	49	179	56	171	54	2725	61
Key West CO	261	78	249	76	309	83	318	83	320	77	278	68	281	67	300	74	248	67	177	49	236	72	248	75	3225	72
Miami CO	226	68	207	63	235	63	262	68	228	55	262	64	250	59	232	58	208	56	117	33	210	64	222	68	2659	60
Pensacola	176	54	191	59	231	62	319	82	333	78	390	92	334	78	298	73	247	67	318	90	206	64	161	51	3204	71
Tampa	209	64	205	63	237	64	305	80	363	87	309	75	299	62	224	56	236	64	144	40	190	59	180	56	2901	65
GEORGIA																										
Atlanta	140	44	150	47	220	59	272	70	311	72	350	81	357	82	249	60	248	67	271	77	163	52	144	46	2875	63
Macon	182	57	174	54	251	67	296	76	286	67	356	83	361	83	240	58	226	61	259	73	171	55	151	49	2953	66
Savannah	149	46	147	46	211	57	243	62	269	63	299	70	268	62	305	74	259	70	245	70	184	58	148	47	2727	61
IDAHO																										
Boise	90	31	166	54	194	53	299	74	312	68	303	66	416	89	400	93	320	85	300	88	238	82	82	29	3120	70
Pocatello	63	21	165	51	168	45	288	72	292	64	331	72	377	81	361	84	326	87	298	87	161	55	50	18	2870	64
ILLINOIS																										
Cairo CO	85	28	158	50	243	66	234	59	325	74	417	95	381	85	330	79	330	89	305	87	176	58	107	36	3091	72
Chicago	122	41	144	47	182	49	241	60	218	48	302	66	317	69	259	60	272	73	254	74	177	60	81	28	2569	57
Moline	104	36	125	40	167	45	242	60	245	54	343	76	341	74	289	67	301	80	258	75	165	56	78	27	2658	59
Peoria	106	35	119	38	167	45	240	60	240	54	347	77	316	69	273	64	297	79	264	77	192	64	83	29	2644	59
Springfield	91	32	134	43	164	44	228	57	231	52	352	78	344	76	290	68	301	81	288	83	168	56	97	33	2688	60
INDIANA																										
Evansville	82	27	133	42	201	54	213	54	268	61	361	82	346	77	311	74	312	84	296	85	145	48	92	31	2760	62
Ft. Wayne	76	25	129	42	184	50	246	62	248	55	315	70	325	71	285	67	291	78	276	80	133	45	73	25	2581	58
Indianapolis	81	27	146	47	200	54	237	59	275	62	377	84	380	84	321	76	321	86	281	81	173	57	85	29	2877	62
Terre Haute	82	27	124	40	164	44	210	53	245	55	322	72	340	75	274	65	302	81	293	85	155	51	82	28	2593	58
IOWA																										
Burlington	139	47	166	54	191	51	284	71	294	66	378	84	364	80	324	76	321	86	293	85	223	75	115	40	3092	69
Charles City CO	127	43	136	44	185	42	244	61	217	48	278	61	316	68	266	62	258	69	264	77	172	59	75	27	2538	57
Des Moines	153	52	134	43	187	50	247	62	286	64	333	73	351	76	284	66	309	83	284	82	172	58	109	38	2849	64
Sioux City CO	189	64	161	52	168	45	261	65	325	72	387	84	378	81	284	66	308	82	290	84	197	67	152	54	3100	69
KANSAS																										
Concordia CO	204	68	185	59	149	40	201	51	267	60	345	77	308	68	247	58	297	80	292	84	174	58	187	64	2856	64
Dodge City	208	68	209	67	241	65	232	64	332	75	400	90	390	87	308	73	326	87	309	89	197	65	206	69	3358	75
Topeka	176	58	177	57	182	46	236	60	300	68	379	85	343	76	303	71	323	86	300	87	166	55	150	51	3035	67
Wichita	200	65	192	61	213	57	251	64	346	79	397	90	376	84	265	63	318	85	315	91	191	63	166	56	3230	72
KENTUCKY																										
Louisville	77	25	146	46	205	55	213	54	277	63	344	78	353	78	297	71	298	80	256	74	150	49	60	20	2676	58
LOUISIANA																										
New Orleans CO	167	51	158	49	211	57	300	78	315	74	337	80	285	66	311	76	254	68	329	93	201	63	166	52	3034	67
Shreveport	142	44	361	50	235	63	253	65	306	71	385	90	344	79	331	80	299	81	329	93	194	62	204	65	3383	71
MAINE																										
Eastport CO	95	33	118	39	193	52	202	50	225	49	280	60	346	73	246	57	239	63	172	51	106	37	100	32	2310	52
Portland	148	51	193	63	157	42	201	50	211	46	318	69	343	73	242	56	258	69	222	65	130	45	133	48	2556	57
MARYLAND																										
Baltimore	131	43	170	54	136	37	155	39	190	43	288	64	330	73	210	49	256	69	235	68	109	36	119	41	2329	51
MASSACHUSETTS																										
Blue Hill Obs.	106	37	150	51	146	41	168	44	216	50	284	65	342	75	234	57	247	69	222	67	126	44	114	41	2345	54
Boston	121	41	168	55	163	44	184	46	221	49	300	66	339	75	256	60	256	68	239	70	143	49	130	46	2530	57
Nantucket	98	33	180	58	210	57	210	52	260	58	275	61	331	72	226	53	275	73	244	71	163	55	120	42	2592	58



Table 9—Continued

## SUNSHINE, AMOUNT AND PERCENT

YEAR 1952

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
MISSOURI																										
Columbia	180	59	176	56	200	54	269	68	293	66	380	85	372	82	205	67	305	82	308	89	158	52	106	36	3032	68
Kansas City	171	56	137	60	212	57	271	68	347	78	418	94	392	87	336	79	332	89	318	92	172	57	148	50	3304	72
St. Joseph	138	46	155	50	165	45	225	56	278	62	375	81	359	79	293	69	322	86	315	91	170	57	146	50	2941	65
St. Louis CO	139	45	141	46	219	59	238	60	296	67	354	79	345	76	232	55	308	83	316	91	193	64	107	36	2891	65
Springfield	88	29	139	44	175	47	204	52	280	64	371	84	292	65	238	57	326	87	319	92	140	46	116	39	2680	60
MONTANA																										
Billings	154	54	162	54	197	53	306	75	290	63	332	71	390	82	317	72	305	81	273	81	164	57	112	41	3002	65
Great Falls	192	37	142	48	200	54	294	72	280	60	292	61	272	77	318	72	287	76	237	70	105	38	91	35	2620	61
Hayes	106	39	165	56	254	69	333	81	344	73	334	69	343	71	333	75	256	68	238	71	132	48	129	50	2967	64
Helena	123	41	165	55	235	64	317	78	278	60	311	66	403	84	324	74	298	79	263	78	167	59	131	49	3015	67
Missoula	71	26	117	39	140	38	282	69	214	46	223	47	386	80	310	71	286	76	254	75	120	43	32	12	2435	54
NEBRASKA																										
Lincoln CO	174	58	156	50	160	43	203	51	304	68	361	80	368	80	270	63	309	83	283	82	211	71	190	66	2989	66
North Platte	204	68	205	66	218	59	258	65	305	68	363	80	337	74	263	62	276	74	285	83	157	53	186	64	3057	68
Omaha	147	50	111	46	128	35	205	51	267	59	335	74	354	77	266	62	302	81	286	83	155	52	136	47	2722	61
Valentine	187	64	194	63	196	53	277	69	300	66	363	79	401	87	334	78	318	85	304	89	186	63	205	73	3268	72
NEVADA																										
Ely	169	56	201	64	206	55	239	60	300	68	361	81	323	71	344	81	288	77	316	91	215	72	152	52	3114	69
Reno	177	59	208	67	220	59	306	77	371	83	308	69	346	76	409	96	315	84	311	90	239	79	141	48	3351	74
Winnemucca	156	52	194	63	225	61	310	78	388	87	365	81	405	88	420	98	326	87	320	93	240	81	107	37	3456	73
NEW HAMPSHIRE																										
Concord	155	53	210	68	173	47	217	51	236	52	292	63	331	71	279	65	225	60	208	61	98	34	97	35	2521	55
Mt. Washington	113	40	103	35	132	35	235	57	171	37	193	41	247	52	188	43	167	41	347	39	106	36	106	27	2108	41
NEW JERSEY																										
Atlantic City	158	52	214	68	217	58	227	57	282	63	352	79	368	81	296	70	277	74	276	79	195	65	166	57	3028	68
Trenton	153	51	207	66	201	54	183	46	239	53	317	70	346	76	243	57	266	71	247	71	150	50	139	48	2691	59
NEW MEXICO																										
Albuquerque	218	69	222	70	253	68	283	72	327	75	373	86	333	76	298	72	304	82	325	93	221	71	188	62	3345	75
Roswell	213	67	230	72	304	82	314	81	326	76	334	78	---	---	---	---	---	---	---	---	---	---	---	---	---	---
NEW YORK																										
Albany	104	34	208	68	157	42	198	49	258	57	318	69	363	73	268	62	259	69	264	77	137	47	118	42	2652	59
Binghamton CO	104	35	151	49	94	25	187	47	223	49	313	69	364	79	301	70	272	73	194	56	77	26	69	24	2349	53
Buffalo	45	15	106	35	132	36	209	52	251	55	308	67	331	71	275	64	235	63	166	48	61	21	64	23	2183	49
New York CO	113	48	192	62	161	44	175	44	226	50	294	65	323	71	243	57	267	71	249	72	161	54	130	45	2564	57
Oswego CO	35	12	135	44	122	33	236	59	247	54	295	64	361	77	319	74	260	69	166	49	80	28	46	17	2302	51
Rochester	93	32	160	52	152	41	224	56	257	57	315	68	366	79	307	71	254	68	175	51	84	29	81	29	2468	53
Syracuse	57	19	127	42	108	29	197	49	229	50	261	57	320	69	256	60	275	73	179	52	75	26	104	37	2188	49
NORTH CAROLINA																										
Asheville CO	170	54	188	60	252	68	263	67	350	80	365	84	341	77	230	55	267	72	270	77	160	52	177	58	3033	67
Charlotte	197	63	201	63	255	69	294	75	352	81	359	82	340	77	262	63	285	77	285	81	201	65	169	55	3200	72
Greensboro	197	63	190	60	240	65	220	56	279	64	342	78	289	65	225	54	244	66	262	75	178	58	162	54	2828	63
Hatteras	143	46	156	49	204	55	270	69	315	72	335	77	316	72	266	64	221	59	208	59	168	54	121	40	2723	61
Raleigh	155	50	133	58	252	68	292	74	310	71	344	79	320	72	206	49	225	61	227	65	203	66	128	42	2845	64
Wilmington	174	55	175	55	242	65	276	71	301	70	275	64	267	61	201	49	188	51	204	58	206	66	150	49	2659	60
NORTH DAKOTA																										
Bismarck	167	59	165	55	177	49	339	83	254	54	291	60	369	77	298	68	262	70	247	73	132	47	128	48	2829	62
Devils Lake CO	169	61	170	57	176	48	344	84	322	69	270	56	365	76	299	68	310	82	247	73	153	55	128	49	2953	66
Fargo	169	60	149	50	166	50	303	74	324	69	306	64	327	68	333	76	292	77	248	74	169	60	121	45	2907	65
Williston	118	43	131	44	223	60	378	92	374	79	368	77	396	82	341	77	280	74	266	79	117	42	169	65	3161	71
OHIO																										
Cincinnati	89	29	133	42	150	41	216	54	251	57	317	71	326	72	254	60	275	74	242	70	122	40	48	16	2423	54
Cleveland	60	20	113	37	120	32	223	56	270	60	333	73	340	74	299	70	282	76	216	63	104	35	59	21	2419	54
Columbus	97	32	114	37	113	30	206	52	255	57	350	78	353	77	288	68	300	80	229	66	108	36	67	23	2480	57
Dayton	96	32	129	42	154	42	206	52	251	56	316	77	347	76	273	61	298	80	219	63	135	45	70	24	2524	57
Sandusky	190	34	143	46	171	46	326	63	263	59	340	75	372	81	317	74	306	81	256	75	149	50	75	26	2181	51
Toledo	78	26	121	39	178	48	246	61	272	60	352	78	335	73	275	64	262	70	199	58	76	26	41	15	2435	55
OKLAHOMA																										
Oklahoma City	132	58	200	63	271	73	244	62	349	80	376	86	335	76	302	72	313	84	325	93	183	59	187	62	3267	73
Tulsa	145	46	166	52	236	64	235	60	336	77	396	91	375	81	340	81	333	89	325	93	171	55	162	54	3220	71
OREGON																										
Baker CO	138	48	195	64	245	66	283	70	275	60	293	63	426	90	384	88	307	82	290	85	214	74	104	38	3154	69
Portland	73	26	125	41	147	40	276	68	270	58	226	48	274	79	259	59	275	73	213	63	137	48	56	21	2431	52
Roseburg	55	19	100	32	103	28	249	62	308	68	220	48	421	90	341	79	279	74	187	54	114	40	79	28	2456	55
PENNSYLVANIA																										
Erie CO	52	17	119	39	131	35	197	50	255	56	299	66	288	62	252	59	265	71	170	50	72	24	48	17	2148	46
Harrisburg	143	48	168	54	170	46	181	45	230	51	330	73	356	78	266	62	280	75	235	68	109	36	82	28	2550	57
Philadelphia CO	154	51	212	68	195	53	185	45	254	57	334	74	349	77	242	57	267	72	265	76	149	50	143	49	2742	61
Pittsburgh	84	28	119	38	127	31	166	42	198	44	292	65	284	62	178	42	235	63	215	62	156	52	104	36	2158	48
Reading CO	126	42	169	54	170	46	179	45	225	50	317	70	326	71	238	56	267	72	243	70	119	40	83	32	2472	54
Scranton CO	106	36	150	48	152	41	168	42	231	51	297	66	306	67	214	50	255	68	221	64	124	42	109	38	2333	51
RHODE ISLAND																										
Providence	121	41	183	60	184	50	205	51	283	6																



Table 9—Continued

## SUNSHINE, AMOUNT AND PERCENT

YEAR 1952

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
TEXAS (Cont'd.)																										
El Paso	231	72	257	80	312	84	329	84	367	86	369	87	344	79	332	81	322	87	344	98	222	70	254	81	3683	82
Galveston CO	143	41	162	50	206	55	247	64	282	67	318	76	243	57	314	77	261	71	328	92	184	57	166	52	2854	67
Houston CO	100	31	154	43	196	53	224	58	321	76	361	86	282	66	333	82	281	76	342	96	166	52	141	44	2901	64
Palestine CO	156	49	157	49	225	60	277	71	318	74	369	87	348	80	377	91	329	89	331	94	153	48	167	53	3207	72
Port Arthur CO	157	49	156	48	215	58	270	70	292	69	339	81	229	53	251	61	295	80	327	92	162	51	139	44	2832	64
San Antonio	155	48	197	61	235	63	266	69	306	73	287	68	344	80	380	93	306	83	327	92	134	42	163	51	3100	69
UTAH																										
Salt Lake City	126	42	180	58	159	43	281	70	352	79	366	81	385	84	337	79	327	87	320	93	185	62	102	35	3120	70
VERMONT																										
Burlington	95	33	133	43	122	33	197	49	215	47	277	60	299	64	237	55	176	47	138	40	65	22	80	29	2034	44
VIRGINIA																										
Cape Henry CO	168	55	177	56	218	59	232	59	301	69	332	75	349	78	287	68	274	74	264	76	186	61	146	49	2934	65
Lynchburg	137	44	174	55	204	55	195	49	262	60	314	71	279	62	201	48	261	70	256	73	153	50	158	53	2594	58
Norfolk CO	136	44	159	51	207	56	245	62	312	71	351	80	352	79	283	67	253	63	229	65	183	60	144	48	2833	64
Richmond	138	45	164	52	219	59	229	58	263	60	345	78	353	79	270	64	284	76	248	71	177	58	134	45	2824	64
Washington Nat'l. Airport	120	39	167	54	169	45	200	51	247	56	335	75	352	78	255	60	287	77	251	72	127	42	114	39	2624	59
WASHINGTON																										
North Head CO	37	13	65	21	108	29	231	57	248	53	163	35	167	35	172	39	194	51	168	50	182	64	66	24	1801	40
Seattle CO	32	11	67	23	101	27	206	50	257	55	230	48	344	72	249	56	252	67	176	52	112	40	68	26	2094	47
Spokane	25	9	74	25	144	39	305	75	351	75	290	61	420	87	332	75	277	73	283	84	96	34	19	7	2616	58
Tacoma CO	55	20	93	31	141	38	257	63	267	57	222	47	327	68	236	54	232	62	137	41	77	27	57	21	2101	47
Tatoosh CO	32	12	86	29	91	25	185	45	227	48	273	56	305	63	174	39	245	65	171	51	117	42	35	14	1941	41
Walla Walla CO	66	23	157	52	135	50	296	73	305	66	306	65	427	90	378	87	300	80	260	77	106	37	24	9	2810	63
WEST VIRGINIA																										
Elkins	65	21	121	39	141	38	164	41	188	42	286	64	289	64	231	55	232	62	216	62	99	33	77	26	2109	47
Parkersburg CO	53	19	97	31	126	34	164	41	242	54	356	80	305	67	263	62	271	73	195	56	68	23	60	21	2205	47
WISCONSIN																										
Green Bay	127	44	153	51	190	51	274	68	252	55	260	56	320	68	282	65	260	69	239	70	136	47	81	30	2574	58
Madison	121	41	139	45	214	58	252	63	216	47	274	60	343	74	285	67	294	78	278	81	151	52	100	36	2667	60
Milwaukee	121	41	128	42	206	56	257	64	267	59	305	66	366	79	319	74	290	77	238	69	139	48	77	27	2713	61
WYOMING																										
Cheyenne	208	70	212	68	244	66	271	68	270	60	370	82	358	78	321	75	340	91	296	86	183	62	158	55	3231	73
Lander	182	62	205	66	253	68	274	68	274	61	360	79	366	79	293	68	309	82	280	82	158	54	179	64	3133	71
Sheridan	207	72	211	70	283	77	346	85	299	65	369	79	392	83	306	70	298	79	269	79	171	59	107	39	3258	73
PACIFIC AREA																										
Honolulu T.H. CO	226	66	240	72	272	73	287	76	293	72	295	73	---	---	315	77	289	79	259	72	218	65	246	73	---	---
Lihue T.H.	153	45	179	54	129	34	154	41	241	59	253	63	255	62	270	68	261	71	210	58	184	55	197	59	2486	56
PUERTO RICO																										
San Juan	213	62	224	67	268	72	233	62	258	64	256	64	244	60	294	74	240	65	247	68	259	77	279	82	3015	68
ALASKA																										
Anchorage	110	54	77	29	150	41	250	56	344	63	332	58	209	37	221	45	153	40	62	20	43	22	51	29	2002	41
Juneau	61	27	60	22	131	35	92	22	48	11	149	27	170	31	96	20	50	13	42	13	16	7	28	12	943	20



## ANNUAL CLIMATOLOGICAL DATA

YEAR 1952

Table 10

State and Station	Temperature				Precipitation				Relative humidity				Wind				Percent of possible sunshine				Sunrise to sunset				Number of days				Max temp.		Min. temp.					
	Averages		Extremes		Total	Greatest in 24 hrs.	Date	Snow, Sleet, Hail		1:30 a. m. R. S. T.	7:30 a. m. R. S. T.	1:30 p. m. R. S. T.	7:30 p. m. R. S. T.	Average hourly speed	Prevailing direction	Speed	Direction	Fastest mile	Date	Precipitation 0.1 inch or more	Snow, Sleet, Hail 1.0 or more	Thunderstorms	Heavy fog	90° and above	32° and below	Zero and below										
	Daily maximum	Daily minimum	Annual	Highest				Lowest	Date																											
ALABAMA																																				
Anniston	74.7	48.6	61.7	104	2929	48.90	3.97	Aug. 29-30	T	Mar. 24	---	---	---	5.8	E	*38	W	10	Mar. 10	134	111	0	70	11	75	0	66	0								
Birmingham	74.8	51.1	63.0	106	2694	43.15	5.13	Aug. 6-7	T	July 7	80	83	52	60	N	60	SE	10	Mar. 10	128	100	0	57	7	83	0	46	0								
Mobile CO	76.9	58.8	67.9	103	1453	56.90	6.62	Sept. 18	T	Mar. 6	84	85	54	72	---	63	---	Feb. 15	108	145	111	0	66	15	74	0	5	0								
Montgomery	77.0	53.8	65.4	105	2111	40.52	1.85	May 10-11	T	Mar. 24	82	86	53	64	NW	60	SW	10	Mar. 10	86	148	100	0	71	9	89	0	28	0							
ARIZONA																																				
Flagstaff	59.4	28.9	44.2	86	7584	20.06	1.78	July 17-18	116.8	22.0	10-11	---	---	---	---	---	---	---	---	91	109	84	25	55	8	0	23	212	18							
Phoenix CO	84.6	57.8	71.2	112	1628	11.06	1.16	Aug. 24	T	Mar. 13	53	61	34	30	SE	48	E	26	July 26	73	71	46	0	28	0	177	0	5	0							
Prescott	69.2	39.9	54.6	95	4608	15.12	1.17	Sept. 19-20	37.5	7.1	11	54	63	36	33	SW	SW	Feb. 15	88	85	70	12	49	1	47	0	135	0								
Tucson	82.3	54.1	68.2	107	1973	12.65	1.19	Mar. 9	3.4	3.4	9	45	55	30	27	6.6	SE	59	Feb. 26	89	80	56	1	46	1	174	0	22	0							
Winslow	69.3	40.1	54.7	100	4831	9.63	.91	Sept. 20-21	12.1	4.2	23-24	52	62	36	31	7.9	SE	*52	Feb. 2	83	94	62	5	39	7	70	11	135	3							
Yuma	88.7	60.2	74.5	114	1148	2.92	.69	July 17-18	.0	.0	-----	40	50	28	21	7.6	NNE	51	July 19	61	38	22	0	8	1	195	0	2	0							
ARKANSAS																																				
Fort Smith	74.1	49.0	61.5	103	3344	32.14	3.58	Nov. 24-25	7.6	3.9	28-29	74	82	48	52	8.1	NE	56	Nov. 5	108	78	3	48	7	103	0	75	0								
Little Rock	73.5	51.9	62.7	104	2977	43.58	3.13	Nov. 3-4	1.6	1.0	28	75	81	53	57	8.7	SW	*61	May 9	124	83	1	48	7	92	0	41	0								
Texasarkana	75.7	53.2	64.5	99	2484	41.80	3.19	Nov. 24-25	T	Dec. 14	75	84	53	56	8.8	S	57	ESE	17	118	85	0	53	9	104	0	32	0								
CALIFORNIA																																				
Bakersfield	77.7	51.5	64.6	105	2241	9.64	.97	Nov. 14-15	T	Nov. 14	60	71	49	40	5.0	WNW	*30	Dec. 5	91	47	0	6	22	114	0	10	0									
Beaumont	73.4	45.5	59.5	103	3209	22.95	2.04	Jan. 16	.6	.6	7	---	---	---	---	---	---	---	---	95	57	0	---	---	99	0	38	0								
Bishop	72.4	37.2	54.8	101	4605	10.10	3.32	Jan. 15	29.5	9.0	15	---	---	---	---	---	---	---	---	89	36	9	11	0	96	1	143	0								
Blue Canyon	56.8	41.1	49.0	96	6180	36.94	4.88	Jan. 14-15	591.1	38.5	14-15	---	---	---	---	---	---	---	---	139	100	64	12	72	0	39	116	0								
Burbank	74.4	50.6	62.5	101	1981	30.06	4.96	Jan. 15-16	.1	.1	13	72	78	50	47	4.4	S	*33	Dec. 21	104	50	0	8	35	48	0	6	0								
Eureka CO	56.1	45.8	51.0	78	5037	41.12	2.93	Dec. 4-5	1.5	1.0	17	---	---	---	---	---	---	---	---	76	234	129	1	8	48	0	0	4	0							
Fresno	75.9	48.9	62.4	103	2618	15.54	1.77	Jan. 24-25	T	Dec. 15	70	83	58	44	6.6	NW	38	N	May 19	102	55	0	10	32	106	0	24	0								
Los Angeles CO	72.9	54.2	63.6	97	1514	24.95	3.98	Jan. 17-18	T	Dec. 20	---	---	---	---	---	---	---	---	---	84	103	49	0	14	10	17	0	0	0							
Los Angeles	68.1	52.8	60.5	89	1900	18.59	2.56	Dec. 17-18	T	Dec. 30	80	83	61	66	6.3	WSW	*62	Mar. 1	119	45	0	6	52	0	0	0	0									
Mt. Shasta CO	32.4	36.7	49.8	96	5932	46.67	4.17	Feb. 6-7	349.6	37.4	6	63	75	55	49	---	---	---	---	145	102	44	17	13	26	14	147	0								
Oakland	65.1	48.6	56.9	99	3035	22.23	1.92	Jan. 11-12	T	Mar. 18	81	86	70	62	6.4	W	*46	Nov. 23	110	124	65	0	4	13	6	0	3	0								
Red Bluff	74.8	50.8	62.8	110	2850	27.04	2.24	Dec. 1	2.0	1.0	8	59	68	48	39	7.7	NW	60	Dec. 7	129	85	2	12	12	108	0	22	0								
Sacramento CO	73.0	49.0	61.0	105	2686	26.08	2.72	Jan. 11-12	T	Mar. 15	75	83	63	50	10.2	SW	70	Dec. 7	122	66	0	7	38	80	0	9	0									
Sandberg CO	53.2	45.4	54.3	92	4839	15.49	3.07	Jan. 17-18	100.5	27.4	17-18	56	57	45	45	17.6	NW	*86	Feb. 2	94	53	16	9	102	13	11	90	0								
San Diego	69.4	54.9	62.2	90	1475	15.52	2.40	Mar. 7-8	T	Jan. 28	79	81	61	62	6.1	N	45	Mar. 7	138	90	54	0	2	30	2	0	0	0								
San Francisco CO	61.3	49.6	55.5	90	3486	31.54	2.01	Dec. 19-20	.3	.3	15	---	---	---	---	---	---	---	---	141	74	0	2	11	1	0	0	0								
San Francisco	63.5	47.4	55.5	93	3483	27.46	1.94	Dec. 6-7	T	Dec. 30	86	90	73	69	11.1	WNW	50	Dec. 1	127	73	0	4	16	1	0	5	0									
Santa Catalina	86.9	52.4	59.7	93	2749	21.74	2.46	Jan. 17-18	.0	.0	-----	---	---	---	---	---	---	---	---	84	100	60	0	1	95	5	0	0								
Santa Maria	86.9	45.5	56.2	88	3176	18.24	1.87	Mar. 15	T	Mar. 1	88	89	63	64	6.8	W	*42	Mar. 14	123	92	63	0	4	104	0	0	8	0								

See reference notes at end of table.



## ANNUAL CLIMATOLOGICAL DATA

Table 10—Continued

YEAR 1952

State and Station	Temperature				Degree days	Precipitation				Relative humidity			Wind				Number of days				Zero and below																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Averages		Extremes			Total	Greatest in 24 hrs.	Snow, Sleet, Hail		humidity			Average hourly speed	Fastest mile			Percent of possible sunshine	Average sky cover	Sunrise to sunset				Heavy fog	Thunderstorms	Snow, Sleet, Hail 1.0 or more	Precipitation 0.1 inch or more	10 or more	Max temp.	Min. temp.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	Daily maximum	Daily minimum	Annual	Highest				Date	Lowest	Date	Total	Greatest in 24 hrs.		Date	Total	Greatest in 24 hrs.			Date	Speed		Direction								Date																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											

See reference notes at end of table.



## ANNUAL CLIMATOLOGICAL DATA

State and Station	Temperature				Precipitation				Relative humidity		Wind				Number of days						Max temp		Min temp								
	Averages		Extremes		Total	Degree days	Snow, Sleet, Hail		1:30 a. m. E. S. T.	7:30 a. m. E. S. T.	Average hourly speed	Prevailing direction	Speed	Fastest mile		Percent of possible sunshine	Average sky cover sunrise to sunset	Sunrise to sunset			Precipitation (0 inch or more)	Snow, Sleet, Hail 10 or more	Thunderstorms	Heavy fog	90° and above	32° and below	32° and below	Zero and below			
	Daily maximum	Daily minimum	Annual	Highest			Date	Lowest						Date	Greatest in 24 hrs			Total	Date												
IDAHO																															
Boise	62.4	38.6	50.5	98	June 9	-2	Jan. 3	28.6	6.4	10-11	Mar.	63	68	51	45	7.7	SE	49	SE	74	131	82	9	19	28	38	20	137	2		
Lewiston	63.7	40.2	52.0	102	July 30	1	Jan. 3	9.0	2.8	22-23	Apr.	--	73	56	45	----	----	--	--	80	181	86	2	21	16	36	14	104	0		
Pocatello	59.1	32.3	45.7	95	July 23	-15	Jan. 3	50.5	5.3	14-15	Nov.	60	71	51	46	8.2	SW	61	SE	89	128	66	23	17	20	27	58	178	22		
ILLINOIS																															
Cairo CO	69.6	51.5	60.6	104	July 28	12	Jan. 29	5.8	4.6	16	Feb.	--	78	56	--	8.6	WSW	47	SW	100	143	96	1	37	6	72	4	50	0		
Chicago	60.7	42.4	51.6	101	June 28	-3	Jan. 29	26.8	4.0	Mar.	74	77	57	62	9.7	SW	60	SW	93	168	107	8	28	15	38	28	123	2			
Joliet	61.3	38.6	50.0	98	June 28	-4	Jan. 24	17.6	3.4	8	Mar.	83	85	58	67	9.7	WSW	--	----	90	155	115	6	37	23	37	29	160	2		
Moline	61.2	40.2	50.7	97	June 13	-6	Jan. 24	28.3	8.2	3-4	Mar.	78	81	56	62	10.3	SW	61	SE	88	151	81	10	36	16	38	34	155	5		
Peoria	62.3	41.9	52.1	100	June 29	-2	Jan. 24	16.0	4.3	13-14	Feb.	77	81	57	62	11.0	S	56	SW	123	155	102	5	45	17	37	27	138	2		
Springfield CO	65.1	45.9	55.5	103	June 29	3	Jan. 29	12.5	2.6	1	Dec.	76	79	55	60	12.2	SW	59	W	76	155	105	6	50	13	56	23	106	0		
INDIANA																															
Evansville	68.2	46.1	57.2	105	July 27	8	Jan. 29	11.8	4.4	16-17	Feb.	80	82	55	61	9.6	SSW	47	NW	30	154	104	5	42	7	66	9	96	0		
Fort Wayne	60.7	41.2	51.0	99	June 29	5	Jan. 24	21.9	7.7	6	Feb.	83	85	63	70	8.6	SW	49	SE	25	166	125	6	46	16	29	31	142	0		
Indianapolis CO	64.1	46.1	55.1	101	June 28	4	Jan. 29	12.6	4.5	1-2	Dec.	81	83	58	68	10.7	SW	61	NW	18	124	83	4	45	18	39	22	95	0		
South Bend	59.7	40.0	49.9	98	July 23	-2	Jan. 30	39.0	5.2	1-2	Dec.	81	83	61	69	11.1	SSW	45	S	26	97	88	16	31	17	23	30	143	2		
Terre Haute	64.9	43.1	54.0	99	July 28	5	Jan. 29	10.9	3.6	1	Dec.	80	84	57	66	7.7	S	47	SW	26	150	117	4	49	12	41	20	122	0		
IOWA																															
Burlington	62.3	41.3	51.8	97	July 22	-4	Mar. 5	24.7	7.8	3-4	Mar.	77	81	57	63	10.2	NW	49	W	19	127	92	9	50	18	38	33	150	4		
Davenport CO	61.3	43.2	52.3	96	June 28	-5	Jan. 24	31.7	7.8	3-4	Mar.	--	--	--	--	----	----	--	----	--	----	84	8	36	9	36	31	133	4		
Des Moines	60.1	40.0	50.1	100	July 27	-12	Jan. 29	32.0	4.2	22-23	Nov.	76	82	61	63	11.3	S	72	W	26	117	96	13	45	12	29	47	154	6		
Dubuque	57.4	37.5	47.5	94	July 12	-16	Jan. 24	47.6	6.4	3-4	Mar.	--	81	59	67	----	----	*37	WNW	2	101	98	18	29	25	13	61	165	8		
Sioux City	60.0	36.9	48.5	101	July 15	-10	Jan. 23	41.2	7.9	21-22	Nov.	78	83	59	62	8.6	NW	58	NW	6	105	144	11	47	18	37	58	168	18		
KANSAS																															
Concordia CO	65.6	43.7	54.7	105	Aug. 1	2	Nov. 28	31.6	5.1	25	Nov.	65	74	50	51	8.1	TS	44	NW	25	158	90	118	12	59	14	74	34	133	0	
Dodge City	68.0	43.1	55.6	105	Aug. 16	0	Mar. 4	28.0	6.8	Mar.	64	71	45	46	14.7	S	74	NW	12	173	99	94	62	9	44	16	77	29	136	1	
Goodland	65.8	35.1	50.5	107	July 15	-12	Nov. 28	28.4	4.0	12	Dec.	67	73	42	44	12.6	NW	52	NW	12	156	116	94	50	25	72	32	179	10		
Topeka CO	67.3	45.4	56.4	108	July 25	4	Mar. 4	24.5	5.9	3	Mar.	75	80	53	56	10.7	S	61	S	12	145	88	133	82	10	49	6	85	22	120	0
Wichita	68.1	46.6	57.4	105	July 17	5	Mar. 4	16.9	6.8	25	Nov.	66	73	50	50	14.6	S	59	NE	1	166	91	109	84	4	40	16	81	20	101	0
KENTUCKY																															
Lexington	67.2	46.1	56.7	103	July 27	4	Jan. 30	7.6	1.3	16-17	Feb.	74	77	52	62	10.5	SSW	--	----	--	120	93	153	129	2	53	6	56	11	89	0
Louisville	58.5	46.8	57.7	104	July 27	8	Jan. 30	12.2	3.7	1	Dec.	76	81	53	58	8.4	S	60	SE	25	126	81	159	110	5	45	0	70	6	85	0
LOUISIANA																															
Baton Rouge	78.7	56.6	67.7	98	July 24	25	Dec. 15	T	T	31	July	81	86	52	62	7.8	SE	--	----	--	114	96	0	54	24	100	0	10	0	0	
Lake Charles	78.0	58.5	68.3	96	Aug. 18	28	Dec. 15	T	T	4	Apr.	85	89	57	68	10.0	SE	54	SE	2	111	136	88	0	51	31	88	0	3	0	
New Orleans CO	78.2	62.2	70.2	97	Aug. 13	34	Dec. 15	T	T	24	Mar.	79	82	58	64	6.7	---	31	SW	30	152	100	109	0	59	21	77	0	0	0	
Shreveport	77.2	54.7	66.0	101	July 18	22	Dec. 15	T	T	14	Dec.	77	86	54	55	8.9	S	--	----	--	165	70	131	80	0	40	8	111	0	19	0
MAINE																															
Caribou	48.7	30.4	39.6	95	July 23	-25	Jan. 30	104.9	18.2	11-12	Feb.	80	77	60	71	10.7	NW	45	NW	28	142	142	28	19	25	7	94	201	24		

See reference notes at end of table.



## ANNUAL CLIMATOLOGICAL DATA

Table 10—Continued

YEAR 1952

State and Station	Temperature					Precipitation					Relative humidity			Wind				Number of days																		
	Averages			Extremes		Degree days	Precipitation				1:30 a. E. S. T.	7:30 a. E. S. T.	1:30 p. E. S. T.	Average hourly speed	Prevailing direction		Fastest mile		Percent of possible sunshine	Average sky cover sunrise to sunset	Sunrise to sunset			Precipitation 0.1 inch or more	Snow, Sleet, Hail 1.0 or more	Thunderstorms	Heavy fog	Max temp.		Min temp.						
	Daily maximum	Daily minimum	Annual	Highest	Lowest		Date	Total	Greatest in 24 hrs.	Date					Snow, Sleet, Hail		Speed	Direction			Date	Clear	Partly cloudy					Cloudy								
															Greatest in 24 hrs.	Total																				
MAINE (Cont'd)	51.3	37.1	44.2	85	-8	Jan. 30	7574	42.59	1.94	Nov. 23-24	105.3	16.8	Jan. 7-8	--	81	68	76	10.2	---	68	N	Feb. 28	52	6.6	88	89	189	135	19	26	81	0	53	141	1	
	56.7	35.7	46.2	94	-10	Jan. 31	7173	45.20	2.66	Feb. 17-18	75.9	20.8	Feb. 17-18	88	82	61	78	8.6	WNW	58	N	Feb. 18	57	6.0	105	108	153	124	16	18	43	7	30	162	4	
	65.9	50.5	58.2	100	-22	Jan. 30	3924	55.89	4.13	July 8-9	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	0	
Baltimore CO	65.4	43.4	54.4	100	21	Jan. 9	4870	52.52	4.76	Aug. 20	16.5	6.0	Mar. 1	--	--	59	--	--	--	--	--	--	--	--	--	--	--	--	8	27	13	39	3	114	0	0
MASSACHUSETTS	58.9	41.4	49.7	99	-3	Jan. 23	6201	39.76	2.74	Feb. 17-18	56.0	9.7	Feb. 17-18	77	74	55	69	14.9	WNW	53	SSE	Feb. 23	54	5.9	106	110	150	128	15	23	107	15	25	108	1	1
	60.2	44.9	52.6	100	-23	Jan. 30	5390	40.60	3.13	Aug. 8-9	33.6	9.2	Feb. 17-18	71	69	53	64	13.0	NW	57	N	Feb. 18	57	6.0	111	97	158	126	10	26	18	17	13	88	0	0
	57.3	43.8	50.6	89	-23	Jan. 31	5580	40.95	2.48	Dec. 22-23	51.2	20.1	Dec. 28	86	81	70	83	13.3	SW	61	NW	Feb. 27	58	6.2	99	95	172	109	8	27	77	0	6	90	0	0
Nantucket	55.4	35.8	45.6	93	-10	Jan. 30	7313	43.88	2.87	Jan. 1	58.5	8.7	Feb. 16-17	--	--	--	--	--	--	--	--	--	--	5.9	98	110	158	136	21	24	28	4	46	158	5	5
Pittsfield	52.9	37.4	45.2	92	-4	Jan. 29	7511	26.54	2.15	Jan. 14-15	50.7	7.7	Apr. 5-6	78	77	62	69	10.5	---	52	S	Aug. 31	54	6.6	85	95	186	136	12	24	10	5	66	149	1	1
MICHIGAN	60.1	41.1	50.6	98	-12	Jan. 29	6105	28.12	1.82	Nov. 16-17	28.1	4.0	Jan. 19	77	78	54	62	9.5	SW	40	E	Mar. 22	--	6.4	87	99	180	118	11	25	31	33	33	135	0	0
Alpena CO	59.5	42.2	50.9	100	26	Jan. 29	5028	29.34	1.38	Jan. 14-15	30.6	3.8	Jan. 19	75	76	56	64	9.9	W	65	SW	Nov. 26	56	6.4	86	107	173	130	11	23	15	29	37	124	0	0
Detroit	51.3	35.9	43.6	89	-10	Jan. 30	7962	28.19	2.01	Jan. 21-22	50.9	7.4	Jan. 21-22	78	80	65	70	10.1	---	46	NW	Jan. 22	55	6.2	91	115	160	117	17	30	16	0	73	160	6	6
Escanaba CO	58.3	42.0	50.2	95	7	Jan. 29	6175	32.37	2.32	Jan. 18	78.7	8.8	Apr. 5	82	83	59	68	9.2	W	65	SW	Nov. 26	53	6.5	86	89	191	134	21	40	5	20	35	128	0	0
Grand Rapids CO	57.5	39.1	48.3	94	-12	Jan. 32	6710	29.13	2.26	May 7-8	50.9	7.9	Apr. 4-5	81	82	61	69	11.6	W	67	SW	Nov. 26	54	6.1	107	93	166	141	16	28	19	17	46	149	0	0
Lansing	51.6	36.3	44.0	93	-6	Jan. 29	7984	25.23	1.48	Jan. 10	89.4	11.8	Dec. 13-14	--	75	62	67	8.2	---	33	S	Jan. 22	51	7.2	62	96	208	142	23	26	14	6	79	161	4	4
Marquette CO	56.5	39.0	47.8	92	-13	Jan. 28	6764	33.34	2.49	Jan. 18	68.6	8.1	Dec. 12-13	81	82	64	71	8.3	WNW	53	SSW	Nov. 26	--	6.4	100	79	187	132	24	31	21	8	42	146	0	0
Muskegon	50.2	32.6	41.4	88	-15	Jan. 29	8684	29.13	2.36	Jan. 7-8	82.4	5.6	Nov. 27-28	85	84	66	75	8.9	NW	43	W	Jan. 15	46	7.0	75	71	220	150	27	34	39	0	83	171	12	12
Sault Ste. Marie	50.0	30.8	40.4	88	-14	Jan. 24	9079	29.19	2.63	Jan. 23-24	43.6	8.0	Jan. 14-15	79	83	63	67	11.9	NW	72	W	Jan. 22	60	6.5	85	105	176	100	12	34	46	0	102	181	27	27
Duluth CO	50.0	26.6	38.3	93	-31	Jan. 23	9893	17.23	1.63	Mar. 2	40.7	3.3	Oct. 16	82	84	61	66	---	---	---	---	---	--	6.3	81	112	173	116	13	26	6	8	116	202	56	56
International Falls	54.9	36.5	45.7	93	-21	Jan. 22	7696	23.67	1.43	Jan. 22-23	67.0	13.7	Nov. 22	75	80	59	60	10.8	WNW	52	NW	Jan. 24	61	5.6	126	89	151	94	18	33	13	17	85	163	19	19
Minneapolis	54.8	34.0	44.5	93	-25	Jan. 25	8031	28.99	4.05	Jan. 23-24	73.6	10.6	Jan. 25	79	81	58	63	8.8	NW	--	--	--	--	6.1	102	96	168	100	20	38	18	14	77	181	18	18
Rochester	53.5	31.3	42.4	92	-30	Jan. 24	8633	27.34	2.94	Jan. 23-24	42.2	5.1	Jan. 21-22	81	84	61	65	7.4	WNW	65	WNW	Jan. 24	--	5.7	115	99	152	102	16	35	19	5	93	184	38	38
St. Cloud	55.9	36.7	46.3	95	-20	Jan. 7	7552	23.64	1.64	Jan. 3-4	67.6	12.0	Dec. 22-23	77	81	57	61	9.0	NW	36	NNW	Nov. 26	--	5.7	118	95	153	93	16	37	21	29	74	161	16	16
St. Paul	77.9	53.6	65.8	104	-17	Jan. 23	2146	31.66	2.10	Dec. 4	T	T	Dec. 9	77	84	50	57	7.4	SSE	68	S	Mar. 10	67	5.1	141	103	122	85	0	52	3	116	0	22	0	0
Jackson	77.7	51.9	64.8	103	-17	Jan. 19	2267	38.46	5.84	May 18-19	T	T	Dec. 21	--	89	50	60	---	---	---	---	---	--	141	103	122	73	0	38	13	103	0	34	0	0	0
Meridian	75.9	56.5	68.3	100	-17	Jan. 26	1958	34.15	2.05	Dec. 4	T	T	Dec. 25	--	--	--	--	8.4	---	38	S	Mar. 10	65	5.3	115	117	134	90	0	51	7	95	0	10	0	0
Vicksburg CO	86.4	44.7	55.6	105	-27	Jan. 4	4911	33.26	2.87	Jan. 4-5	17.4	4.2	Mar. 2	71	78	52	56	10.1	S	63	NW	Sept. 17	68	5.3	139	84	143	99	5	50	17	54	23	115	0	0
Columbia	66.6	46.8	56.7	103	-27	Jan. 6	4793	34.61	3.39	Jan. 21	26.1	6.6	Mar. 3-4	69	76	53	53	10.1	SSW	70	SW	Mar. 12	72	5.2	140	95	131	87	10	37	9	70	20	102	0	0
Kansas City	65.4	43.2	54.3	105	-27	Jan. 3	5398	27.01	2.28	Sept. 1	31.1	6.1	Mar. 3	75	80	54	56	8.6	S	47	S	Dec. 12	65	5.1	150	85	131	84	9	55	10	59	25	137	0	0
St. Josephn	67.6	49.2	58.4	105	-26	Jan. 5	4315	26.70	1.61	Jan. 11-12	10.3	2.0	Nov. 1	72	78	53	57	11.0	†S	61	S	Nov. 25	65	5.3	139	98	129	104	5	44	6	68	13	77	0	0
St. Louis CO	67.7	45.6	56.7	101	-26	Jan. 8	4585	29.28	2.81	Jan. 18	5.8	2.2	Dec. 28-29	76	82	54	58	12.7	SSE	57	S	Dec. 12	60	5.1	151	78	137	92	1	48	15	65	18	106	0	0
Springfield																																				

See reference notes at end of table.



## ANNUAL CLIMATOLOGICAL DATA

Table 10—Continued

YEAR 1952

State and Station	Temperature				Degree days	Precipitation				Relative humidity				Wind				Number of days				Max temp 90° and above	Min temp 32° and below	Zero and below											
	Averages		Extremes			Total	Greatest in 24 hrs	Date	Snow, Sleet, Hail	1:30 a. F. S. T.	7:30 a. F. S. T.	7:30 p. F. S. T.	Average hourly speed	Prevailing direction	Speed	Fastest mile	Percent of possible sunshine	Sunrise to sunset	Clear	Partly cloudy	Cloudy				Precipitation 0.1 inch or more	Snow, Sleet, Hail 10 or more	Thunderstorms	Heavy fog							
	Daily maximum	Daily minimum	Annual	Highest																									Lowest	Date					
MONTANA	Billings	59.6	36.2	47.9	98	-18	2.83	May 21	30.0	5.2	12-13	53	62	44	39	11.1	SW	68	NW	4	Feb.	65	5.4	113	133	120	74	13	22	20	23	47	149	10	
	Butte	53.0	21.5	37.3	90	-27	1.70	May 14	65.6	10.2	14-15	61	78	51	48	7.4	S	50	SW	3	May	--	5.9	97	119	150	96	19	35	17	1	80	229	57	
	Glasgow CO	56.0	28.3	42.2	101	-30	1.83	June 29	42.1	8.0	18	--	--	--	--	--	--	--	--	--	--	--	6.0	98	109	159	70	11	21	19	24	91	186	60	
	Great Falls	56.7	35.1	45.9	95	-25	0.83	June 27	48.1	7.9	16-17	59	65	47	45	13.6	SW	66	SW	4	July	61	6.2	94	98	174	76	18	22	8	11	50	140	20	
	Havre CO	55.7	30.6	43.2	98	-31	0.99	May 13	41.1	5.1	16-17	--	--	--	--	8.1	SW	40	SW	21	June	64	5.4	112	129	125	66	16	20	5	19	74	179	43	
	Helena	55.5	29.3	42.4	96	-24	0.78	May 25	41.6	5.5	15-16	65	75	54	49	5.7	W	56	SW	Feb.	67	5.8	105	123	138	83	14	28	11	7	68	192	31		
	Kalispell	56.2	30.8	43.5	94	-17	0.89	June 11	46.9	6.2	23-24	72	79	55	50	6.5	S	48	NNE	21	Jan.	--	6.7	89	81	196	103	17	24	30	5	45	194	9	
	Miles City	58.5	31.8	45.2	103	-29	0.77	June 22	21.2	--	--	--	--	--	--	9.4	WNW	--	--	Aug.	54	6.5	89	89	188	94	10	26	29	14	56	181	9		
	Missoula	57.1	31.2	44.2	99	-19	0.56	May 25	32.3	5.3	23	68	79	56	47	5.1	NW	45	SW	8	--	--	5.3	119	129	118	69	7	32	--	38	69	176	36	
	NEBRASKA	Lincoln CO	62.7	42.2	52.5	106	-1	3.89	June 26	39.9	7.1	21-22	73	78	52	56	9.1	†N	53	NW	23	June	66	5.2	139	99	128	89	14	49	6	50	47	141	2
NEVADA	Norfolk	60.1	37.2	48.7	103	-7	3.46	July 6	32.5	5.6	19	--	81	55	60	--	--	--	--	--	--	--	5.4	128	100	138	76	8	43	10	41	53	170	15	
	North Platte	63.4	34.7	49.1	107	-15	1.54	Aug. 2	28.4	4.3	12	75	82	49	53	10.6	NW	65	NW	12	Mar.	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Omaha	61.8	41.0	51.4	103	-7	2.40	Nov. 16	38.6	6.9	25-26	77	81	58	61	11.1	SSE	59	W	19	Aug.	61	5.4	131	101	134	103	11	49	19	53	42	189	13	
	Scottsbluff	63.5	34.3	48.9	103	-14	1.35	June 20	48.1	6.9	21-22	66	74	43	45	9.3	NW	36	WSW	8	Nov.	--	4.8	149	109	108	74	13	51	11	52	29	179	16	
	Valentine CO	60.1	35.2	47.7	105	-24	1.50	Aug. 7	34.2	6.9	21-22	--	--	--	--	8.6	--	43	N	6	Dec.	72	5.2	138	101	127	74	11	36	--	38	57	179	13	
	Eiko	61.3	27.7	44.5	97	-14	7.28	Jan. 24	44.2	3.3	Mar. 1	60	70	44	40	5.9	NW	50	W	7	Feb. 29	--	4.7	162	80	124	74	18	26	3	36	42	205	25	
	Ely	58.6	26.0	42.3	92	-24	1.22	July 24	64.7	6.8	15-16	--	--	--	--	11.8	S	66	SE	14	Jan.	69	4.9	152	102	112	78	22	27	1	9	59	213	39	
	Las Vegas	79.2	52.0	65.6	111	3	1.14	Mar. 7	--	--	--	35	42	26	21	6.7	SW	40	SE	19	Feb.	84	3.3	220	75	71	33	0	15	1	146	0	48	0	
	Reno	65.0	31.7	48.4	97	-8	1.60	Apr. 25	55.7	16.9	14-15	64	77	45	37	4.7	WNW	61	SW	5	Mar.	74	4.4	177	67	122	59	15	19	16	44	9	189	4	
	Winnemucca	64.1	31.4	47.8	96	-3	0.69	June 23	44.8	8.7	6-7	60	69	45	38	8.1	E	60	SW	7	Dec.	--	7.3	4.7	164	73	129	86	14	19	1	48	12	196	6
NEW HAMPSHIRE	Concord	58.6	35.1	46.9	99	-14	2.79	Dec. 11	72.5	14.8	5	83	79	54	70	6.2	NW	37	NE	12	Jan.	55	6.1	98	112	156	123	19	20	55	21	31	165	9	
	Mt. Washington	33.9	21.5	27.7	71	-22	3.38	Dec. 12	23.7	26.5	12-13	87	84	85	32.5	W	149	W	12	Dec.	41	7.5	59	97	210	221	58	13	319	0	182	252	49		
	NEW JERSEY	Atlantic City CO	61.9	48.5	55.7	99	26	4.04	Apr. 27	10.3	7.7	1	--	78	64	73	15.6	--	68	SE	1	Sept.	68	5.5	126	101	139	113	2	28	23	12	2	57	0
		Newark	63.3	46.2	54.8	102	26	2.62	May 31	21.2	4.8	1	75	74	54	64	9.1	SW	55	ENE	19	June	--	5.9	110	94	162	117	6	27	21	31	5	87	0
	Trenton CO	63.1	46.6	54.9	100	26	2.46	Apr. 27	17.0	7.2	1	--	--	--	--	--	9.1	N	49	NW	2	Oct.	59	6.0	107	100	159	113	5	35	--	23	6	80	0
	NEW MEXICO	Albuquerque	69.9	44.0	57.0	100	21	1.64	June 23	5.6	2.2	24	45	56	35	30	9.2	SE	54	S	27	Apr.	75	3.8	190	104	72	59	2	40	1	83	5	118	0
		Clayton	67.8	38.7	53.3	100	14	1.34	Apr. 16	19.6	5.0	24-25	--	65	36	40	--	--	--	--	--	--	--	4.0	182	103	81	62	9	58	6	53	17	152	1
	NEW YORK	Raton	64.1	32.8	48.5	97	-8	2.13	Sept. 11	29.3	5.5	11	--	67	35	38	--	--	--	--	--	--	--	4.8	166	102	98	83	11	78	6	24	19	188	8
		Roswell	76.1	44.1	60.1	107	23	1.28	Aug. 9	6.2	3.0	24	--	61	32	27	10.7	SSE	65	NW	2	Feb.	--	3.9	184	111	71	45	2	35	5	106	2	109	0
	NEW YORK	Albany	58.4	38.6	48.5	99	-3	3.48	May 31	47.3	10.4	17	80	78	55	67	8.5	WNW	57	W	18	Jan.	59	6.5	83	107	176	111	13	21	19	37	141	2	
Vermont	Bear Mountain CO	56.5	41.6	49.1	95	-26	4.17	June 1	44.0	7.7	17-18	--	--	--	--	--	--	--	--	--	--	--	--	--	122	102	142	130	14	19	87	4	42	126	1
	Binghamton CO	59.5	40.2	49.9	100	26	2.72	July 9	39.2	6.5	16	80	82	62	62	10.2	NW	54	--	11	Feb.	53	7.0	61	105	200	145	17	26	37	20	29	132	0	

See reference notes at end of table.



## ANNUAL CLIMATOLOGICAL DATA

Table 10--Continued

YEAR 1952

State and Station	Temperature				Degree days	Precipitation				Relative humidity			Wind				Percent of possible sunshine		Number of days				Max. temp. 90° and above	Min. temp. 32° and below	Zero and below																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	Averages		Extremes			Total	Greatest in 24 hrs.	Snow, Sleet, Hail		1:30 a. m. - 1:30 p. m.	1:30 p. m. - 7:30 a. m.	7:30 a. m. - 7:30 p. m.	Average hourly speed	Prevailing direction	Fastest mile			Average sky cover	Sunrise to sunset							Precipitation 0.1 inch or more	Snow, Sleet, Hail 1.0 or more	Thunderstorms	Heavy fog																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
	Daily maximum	Daily minimum	Annual	Highest				Lowest	Date						Greatest in 24 hrs.	Date	Speed		Direction	Date																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

See reference notes at end of table.



Table 10—Continued

YEAR 1952

## ANNUAL CLIMATOLOGICAL DATA

State and Station	Temperature				Precipitation			Relative humidity			Wind				Number of days																					
	Averages		Extremes		Total	Greatest in 24 hrs.	Date	Snow, Sleet, Hail		7:30a. P. S. T.	7:30a. E. S. T.	1:30p. E. S. T.	7:30p. E. S. T.	Average hourly speed	Prevailing direction	Speed	Fastest mile		Percent of possible sunshine	Average sky cover	Sunrise to sunset			Heavy fog	Thunderstorms	Snow, Sleet, Hail 10 or more	Precipitation .01 inch or more	Snow, Sleet, Hail 10 or more	90° and above	32° and below	Min. temp.	Zero and below				
	Daily maximum	Daily minimum	Annual	Highest				Date	Lowest								Date																			
	Date	Date	Date	Date				Date	Date								Date																			
OREGON (Cont'd)	Medford	66.9	40.6	53.8	104	Jan. 9	17	4797	18.70	1.44	Dec. 6-7	20.0	7.0	20-21	Jan.	SSE	55	Mar. 14	--	5.9	126	67	173	98	6	11	47	65	4	109	0					
	Pendleton	62.8	41.8	52.3	101	Jan. 30	4	5257	10.08	.72	Dec. 20-21	23.7	4.5	20	Dec.	SE	--	--	--	5.9	116	85	165	85	8	11	30	30	22	104	0					
	Portland CO	63.2	46.0	54.6	101	Jan. 3	21	4202	28.83	1.19	Dec. 6-7	9.2	5.6	3-4	Jan.	NW	42	Nov. 14	52	7.0	80	213	124	3	3	38	17	5	25	0						
	Roseburg CO	65.3	43.1	54.2	102	Sept. 2	21	4361	29.95	1.62	Dec. 4-5	9.8	3.2	20-21	Jan.	SW	32	Dec. 7	55	6.6	88	81	197	117	5	4	56	29	4	53	0					
	Salem	63.8	39.9	51.9	102	Aug. 15	28	4959	29.88	1.42	Dec. 6-7	8.3	4.3	18-19	Jan.	S	29	Jan. 13	--	6.8	91	71	204	126	2	4	56	22	1	81	0					
	Sexton Summit CO	56.8	40.5	48.7	92	July 8	18	6309	30.73	1.53	Dec. 5-8	173.5	11.0	7-8	Jan.	S	29	Jan. 13	--	5.7	136	58	172	119	43	10	151	3	37	112	0					
	Troutdale	63.0	42.7	52.9	103	Aug. 4	19	4699	28.27	1.20	Dec. 23-24	13.4	6.1	3-4	Jan.	--	--	--	--	6.7	85	83	198	134	3	3	23	20	6	56	0					
	PENNSYLVANIA																																			
	Allentown	61.6	42.1	51.9	99	June 26	4	5545	67.69	4.32	July 9-10	15.8	5.0	2-3	Dec.	W	42	Mar. 11	--	5.9	108	120	138	121	6	31	29	19	8	126	0					
	Erie CO	58.1	44.5	51.3	93	June 25	9	5724	35.08	1.56	Aug. 4	50.0	6.1	6-7	Jan.	SW	33	June 8	46	6.2	94	113	159	158	18	35	6	9	33	100	0					
Harrisburg	62.8	45.0	53.9	100	June 26	11	5029	43.53	4.36	Sept. 1	25.7	6.4	1	Mar.	WNW	56	May 5	57	6.4	86	101	179	133	9	41	18	30	6	95	0						
Park Place CO	56.4	39.8	48.1	94	June 26	3	6643	62.69	3.28	July 9	39.3	6.2	19	Jan.	--	--	--	--	--	6.3	98	97	171	151	11	24	79	3	47	139	1					
Philadelphia CO	64.4	49.1	56.8	98	June 26	9	4269	51.08	3.07	Aug. 8	9	12.4	6.3	1	Mar.	NW	40	Sept. 1	61	5.9	104	119	143	119	4	27	14	29	4	59	0					
Pittsburgh	61.7	44.0	52.9	96	Sept. 13	6	5298	37.72	2.28	July 15	16	34.5	5.9	1	Mar.	WSW	58	Nov. 25	48	6.7	70	110	186	148	13	35	30	26	22	107	0					
Reading CO	63.7	46.7	55.2	102	June 26	10	4692	55.94	3.82	Aug. 8	9	18.8	4.8	1	Mar.	NW	57	Oct. 21	54	6.2	92	111	163	126	6	31	4	28	4	82	0					
Scranton CO	60.0	42.4	51.2	98	June 26	2	5735	39.91	2.86	Dec. 9	9	21.7	3.2	1	Mar.	--	56	--	10.2	NW	57	Nov. 2	51	6.1	94	119	153	132	7	25	11	19	24	107	0	
Williamsport	61.7	40.9	51.3	102	June 26	3	5791	45.92	2.46	Dec. 10-11	34.4	6.3	16	Feb.	W	62	SSE	26	--	6.5	79	117	170	140	8	23	39	31	11	132	0					
RHODE ISLAND																																				
Block Island	58.2	45.4	51.8	90	July 14	9	5292	39.05	4.44	Aug. 6-7	26.7	7.5	27-28	Feb.	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP
Providence CO	62.1	44.1	53.1	101	June 26	1	5234	41.83	2.22	Nov. 22	27.0	6.8	18	Feb.	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	
SOUTH CAROLINA	Charleston CO	74.1	59.6	66.9	103	June 27	30	1677	39.20	3.11	Sept. 21-22	.0	.0	-----	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	
	Columbia CO	75.0	54.5	64.8	106	July 24	15	2224	39.36	2.31	Aug. 6-7	T	T	26	Feb.	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	
	Florence	75.6	52.5	64.1	104	July 24	20	2378	45.33	3.61	Aug. 31	T	T	26	Feb.	--	50	68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Greenville	72.5	51.6	62.1	104	July 29	17	2891	47.09	2.86	Mar. 6-7	3.2	3.2	26	Feb.	76	78	52	62	8.0	SW	65	May 10	68	5.4	125	103	138	106	1	48	21	62	0	35	0
	Spartanburg	72.1	50.9	61.5	103	Jan. 29	18	2963	47.77	2.83	Mar. 3-4	4.0	4.0	26	Feb.	--	80	53	65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	SOUTH DAKOTA																																			
	Huron	57.4	33.4	45.4	103	July 21	18	7962	9.72	1.33	June 24-25	31.2	7.3	14	Jan.	NW	72	SW	6	70	5.5	119	115	132	72	9	38	16	39	86	186	29	0			
	Rapid City	60.8	35.2	48.0	108	July 24	23	6925	11.24	1.32	May 21-22	15.2	2.6	12	Mar.	NW	61	NW	21	66	4.9	151	99	116	70	6	44	13	39	45	163	14	0			
	Sioux Falls	57.6	34.0	45.8	97	July 27	22	7713	18.86	1.63	Feb. 18-19	48.5	16.5	19	Feb.	S	70	SW	23	--	5.7	123	99	144	87	10	43	16	33	73	174	28	0			
	TENNESSEE																																			
Bristol	68.8	45.3	57.1	102	July 29	11	4094	32.27	1.94	Nov. 21	19.3	16.2	21	Nov.	W	40	WSW	4	--	5.7	115	103	148	115	1	41	22	44	4	94	0	0	0	0		
Chattanooga	73.0	48.8	60.9	106	July 28	15	3265	44.39	3.29	Nov. 10	T	T	26	Nov.	SSW	63	W	29	57	5.9	108	115	143	120	0	51	32	75	0	64	0	0	0			
Knoxville	71.0	49.3	60.2	103	July 28	15	3435	36.00	2.66	Nov. 21-22	18.2	18.2	21-22	Nov.	W	59	SW	10	50	5.7	116	106	144	113	2	45	16	61	3	64	0	0	0			
Memphis	73.1	51.3	62.2	106	July 28	22	3150	40.26	1.91	Dec. 9-10	T	T	26	Dec.	S	54	S	22	68	5.0	157	82	127	80	0	43	7	94	1	50	0	0	0			
Nashville	71.7	49.5	60.6	107	July 27	14	3573	39.81	4.64	Mar. 21-22	1.1	.4	29	Nov.	S	71	NW	30	58	5.4	133	105	128	104	0	46	10	81	3	61	0	0	0			

See reference notes at end of table.



## ANNUAL CLIMATOLOGICAL DATA

Table 10—Continued

YEAR 1952

State and Station	Temperature				Degree days	Precipitation				Relative humidity			Wind				Number of days							Max. temp.		Min. temp.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
	Averages		Extremes			Total	Greatest in 24 hrs.	Date	Snow, Sleet, Hail		Date	1:30 a. F. S. T.	7:30 a. F. S. T.	7:30 p. F. S. T.	Average hourly speed	Prevailing direction	Fastest mile			Percent of possible sunshine	Average sky cover	Sunrise to sunset			Thunderstorms	Heavy fog	90° and above	32° and below	Zero and below																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	Daily maximum	Daily minimum	Annual	Highest					Lowest	Date							Total	Greatest in 24 hrs.	Direction			Speed	Direction	Date						Clear	Partly cloudy	Cloudy																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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See reference notes at end of table.



## ANNUAL CLIMATOLOGICAL DATA

Table 10—Continued

YEAR 1952

State and Station	Temperature				Precipitation				Relative humidity			Wind				Number of days																	
	Averages		Extremes		Total	Greatest in 24 hrs	Date	Snow, Sleet, Hail	1:30 a. m.	7:30 a. m.	7:30 p. m.	Average hourly speed	Prevailing direction	Speed	Fastest mile	Percent of possible sunshine	Average sky cover	Clear	Partly cloudy	Cloudy	Precipitation	Snow, Sleet, Hail	Thunderstorms	Heavy fog	Max temp	Min temp	Zero and below						
	Daily maximum	Daily minimum	Annual	Highest																								Lowest	Date	Greatest in 24 hrs	Date		
	WASHINGTON (Cont'd.)																																
Port Angeles	53.8	43.5	48.7	80	28	Jan. 28	Aug. 3	Jan. 23	85	87	78	76	8.7	W	*10	SSW	30	Dec.	76	223	118	1	0	52	0	0	8	0					
Seattle CO	60.4	46.2	53.3	93	4	Jan. 19	Aug. 4	Jan. 3-4	77	85	70	59	8.7	N	52	SW	17	Mar.	84	211	121	2	3	27	3	2	15	0					
Seattle-Tacoma	58.7	41.4	50.1	92	4	Jan. 10	Aug. 10	Jan. 23	80	89	74	63	9.8	SW	---	---	---	Mar.	56	98	212	139	2	2	68	1	2	57	0				
Spokane	58.4	37.8	48.1	98	30	Jan. 1	July 30	Dec. 26	65	75	57	50	6.6	SSW	45	SW	28	Feb.	107	74	185	102	21	11	52	18	48	147	2				
Tacoma CO	58.9	44.3	51.6	92	4	Jan. 17	Aug. 4	Jan. 3-4	76	86	71	63	7.2	SW	47	SW	4	Feb.	97	194	134	2	2	59	2	1	28	0					
Tatoosh CO	52.4	44.3	48.4	74	30	Jan. 30	Aug. 3	Jan. 3	88	90	86	85	13.8	E	72	S	30	Dec.	50	68	248	182	2	5	63	0	0	6	0				
Walla Walla CO	64.2	44.8	54.5	103	30	Jan. 9	July 3	Jan. 11	---	---	---	---	5.3	---	33	SE	4	Dec.	114	106	146	93	8	9	19	39	25	68	0				
Yakima	63.6	35.2	49.4	102	9	Jan. 0	July 12	Jan. 11	71	79	52	45	7.1	W	---	---	---	---	111	87	168	63	12	5	26	35	33	162	1				
WEST VIRGINIA																																	
Charleston	67.5	45.4	56.5	99	28	Jan. 12	Sept. 28	Nov. 29	79	80	52	61	8.0	S	*50	WNW	16	Apr.	67	114	185	138	7	50	39	41	5	92	0				
Elkins	62.8	38.8	50.8	93	16	Jan. 30	June 3	Nov. 28	86	87	57	72	5.0	NW	60	NW	18	Jan.	64	93	203	159	18	51	84	8	18	135	1				
Huntington CO	70.6	47.0	58.8	103	28	Jan. 11	July 30	Nov. 23	---	---	---	---	---	---	---	---	---	Mar.	---	---	---	124	---	---	---	67	3	74	0	0			
Parkersburg CO	66.0	45.3	55.7	99	28	Jan. 12	July 30	Nov. 23	---	---	---	---	5.8	---	38	NW	13	Mar.	47	6.6	91	78	197	128	2	43	9	101	0				
Petersburg CO	66.7	42.5	54.6	102	28	Jan. 31	July 10	Nov. 23	---	---	---	---	---	---	---	---	---	---	6.2	97	97	172	115	5	37	4	48	5	112	0			
WISCONSIN																																	
Green Bay	54.9	33.9	44.4	93	12	Jan. 23	Sept. 21	Jan. 8	82	83	60	69	9.6	SW	57	NE	43	Apr.	58	6.0	103	94	163	104	18	30	7	72	176	12			
La Crosse	56.5	37.5	47.0	95	25	Jan. 29	July 24	Dec. 8	78	81	59	63	9.3	S	58	E	23	Mar.	6.2	98	94	174	99	21	39	14	20	56	165	11			
Madison CO	56.3	40.2	48.3	93	12	Jan. 13	July 24	Feb. 19	73	80	58	66	10.6	W	46	SW	15	AP	60	6.0	120	81	165	102	18	36	21	8	61	149	6		
Milwaukee CO	55.7	41.4	48.6	95	22	Jan. 29	July 24	Mar. 18	77	79	59	67	11.3	SW	59	W	23	Mar.	61	6.0	117	84	165	106	17	33	33	11	44	127	3		
WYOMING																																	
Casper	59.1	33.5	46.3	99	24	Jan. 17	July 22	Mar. 12	57	64	42	41	12.2	SW	---	---	---	---	5.2	136	99	131	65	18	37	11	31	48	175	14			
Cheyenne	58.5	32.6	45.6	93	24	Jan. 22	July 22	Mar. 12	64	67	41	46	12.5	W	56	NW	12	Mar.	73	5.2	128	114	124	88	18	42	13	9	40	185	12		
Lander	58.5	31.1	44.8	95	24	Jan. 15	July 22	Mar. 12	55	62	44	41	7.1	---	50	W	1	June	71	4.7	145	126	95	60	17	20	2	11	51	179	26		
Rock Springs	54.2	30.3	42.3	92	23	Jan. 17	July 26	Mar. 12	58	66	45	44	10.6	WSW	52	WNW	7	Dec.	5.3	130	103	128	72	9	32	6	1	83	190	27			
Sheridan	60.2	31.4	45.8	102	24	Jan. 18	July 23	Mar. 12	68	73	47	48	7.1	NW	66	SW	21	June	73	5.2	130	118	118	87	15	29	7	24	43	183	28		
PACIFIC AREA																																	
Canton Island	90.6	78.6	84.6	97	71	July 2	Sept. 13	May 21	76	80	80	65	---	---	*34	ESE	27	July	5.8	62	213	91	111	0	4	0	242	0	0	0	0		
Hilo	78.9	65.3	72.1	88	59	July 20	Oct. 15	May 26	85	88	84	73	5.3	SW	37	SSE	19	Mar.	33	8.0	20	97	249	309	0	5	0	0	0	0	0		
Honolulu CO	79.1	70.3	74.7	85	62	Jan. 23	Aug. 15	Jan. 19	71	75	72	57	12.6	ENE	43	S	19	AP	5.4	104	167	95	137	0	3	0	0	0	0	0	0		
Koror CO	87.6	74.9	81.3	92	71	Jan. 30	Aug. 23	May 16	76	88	81	---	---	---	---	---	---	Mar.	---	---	---	274	0	36	0	36	0	0	0	0	0	0	
Lihue	79.8	68.1	74.0	86	53	Jan. 23	Aug. 16	Jan. 19	78	80	78	67	12.6	NE	36	E	27	Mar.	56	6.7	39	167	160	219	0	11	0	0	0	0	0	0	
Moen CO	85.9	75.5	80.7	91	3	Jan. 2	Aug. 3	May 1	78	83	78	---	---	---	---	---	---	---	---	---	---	285	0	4	0	1	0	0	0	0	0	0	0
Ponape CO	87.6	74.2	80.9	93	23	Jan. 21	Aug. 30	May 31	83	93	80	---	---	---	---	---	---	---	---	---	---	281	0	15	0	34	0	0	0	0	0	0	0
Wake Island	84.7	75.7	80.2	91	8	Jan. 14	Aug. 16	Sept. 16	74	79	79	71	13.7	E	---	---	---	---	---	---	---	188	0	8	0	13	0	0	0	0	0	0	0
Yap	87.4	75.9	81.7	94	10	Jan. 8	Sept. 10	July 27	78	88	80	---	---	---	---	---	---	---	---	---	---	268	0	9	0	88	0	0	0	0	0	0	0
WEST INDIES																																	
San Juan, P. R., CO	83.7	72.7	78.2	92	66	Dec. 22	Sept. 4	June 29	86	80	69	78	9.0	ENE	49	S	23	AP	68	5.7	83	178	105	204	0	75	0	15	0	0	0	0	
Santa Isabel, P. R.	86.5	69.3	77.9	92	60	Jan. 21	Aug. 4	Sept. 23	91	79	66	83	5.2	SSE	23	SSE	26	Mar.	5.2	102	187	77	103	0	78	0	27	0	0	0	0	0	0

See reference notes at end of table.



## ANNUAL CLIMATOLOGICAL DATA

Table 10-Continued

YEAR 1952

State and Station	Temperature				Degree days	Precipitation				Relative humidity			Wind				Number of days																	
	Averages		Extremes			Total	Greatest in 24 hrs	Date	Snow, Sleet, Hail		1:30 a. m. to 1:30 p. m.	1:30 p. m. to 7:30 p. m.	7:30 p. m. to 11:30 p. m.	Average hourly speed	Prevailing direction	Speed	Direction	Fastest mile	Percent of possible sunshine	Average sky cover	Sunrise to sunset			Precipitation 0.1 inch or more	Snow, Sleet, Hail 1.0 or more	Thunderstorms	Heavy fog	Max temp 90° and above	Min temp 32° and below	Zero and below				
	Daily maximum	Daily minimum	Annual	Highest					Lowest	Date											Greatest in 24 hrs	Total	Clear								Partly cloudy	Cloudy		
	Date																																	
VIRGIN ISLANDS																																		
	Nov. 28	64	11	91	0	53.49	3.29	Sept. 22-23	0.0	0.0	-----	87	78	69	84	10.7	ENE	45	ESE	Aug. 7	--	6.1	35	238	93	191	0	42	0	17	0	0	0	
St. Croix	Dec. 1	64	11	91	0	53.49	3.29	Sept. 22-23	0.0	0.0	-----	87	78	69	84	10.7	ENE	45	ESE	Aug. 7	--	6.1	35	238	93	191	0	42	0	17	0	0	0	
Swan Island	June 18	71	18	90	0	60.51	4.19	3-4	.0	.0	-----	82	82	72	79	9.9	---	35	---	June 16	--	6.0	89	149	128	146	0	53	0	5	0	0	0	
ALASKA																																		
	July 19	20	-28	79	10978	16.99	1.58	26-26	77.0	10.8	11-12	77	83	78	66	4.9	NE	56	SW	Nov. 21	41	7.8	49	64	253	125	25	3	35	#10	36	219	36	
Anchorage	Jan. 8	8	22	7208	89.53	5.04	24-25	66.9	9.2	16-17	85	87	82	78	12.5	SE	40	SE	Apr. 16	--	8.2	42	54	270	220	23	1	23	#15	12	65	0	0	
Annette	Aug. 1	86	12	8	7208	89.53	5.04	24-25	66.9	9.2	16-17	85	87	82	78	12.5	SE	40	SE	Apr. 16	--	8.2	42	54	270	220	23	1	23	#15	12	65	0	0
Barrow	Aug. 1	64	-47	10	20424	4.01	.39	13-14	13.1	1.2	10-11	74	75	75	75	11.8	ENE	56	E	Mar. 16	--	6.6	90	52	224	75	1	0	46	#0	266	332	172	
Bethel	July 8	82	21	-32	8	13476	26.52	1-87	3-4	127.2	18.7	3-4	84	89	86	78	10.5	N	40	S	Mar. 14	--	7.6	48	77	241	188	28	1	20	#9	138	236	80
Cordova	Aug. 1	82	21	-32	8	13476	26.52	1-87	3-4	127.2	18.7	3-4	84	89	86	78	10.5	N	40	S	Mar. 14	--	7.6	48	77	241	188	28	1	20	#9	138	236	80
Fairbanks	Jan. 19	75	13	-20	19	9832	117.31	6-60	28-29	117.5	8.5	31	87	89	81	77	4.8	E	55	N	May 13	--	8.2	46	43	277	233	45	1	6	#5	32	179	18
Galena	July 10	84	22	-56	10	14155	8.37	.61	28-29	33.5	3.7	11-12	65	74	67	56	4.3	N	26	W	May 22	--	7.6	44	76	246	101	12	6	18	#39	147	233	118
Gambell	Feb. 13	65	21	-20	13	14811	17.04	.72	26-27	116.7	7.4	26-27	83	85	84	80	19.1	NE	59	SE	Nov. 23	--	7.4	63	61	222	127	12	4	10	#28	183	243	114
Juneau	July 23	78	22	-17	23	8893	65.08	3.17	13-14	73.1	6.2	12	85	88	83	78	9.4	E	54	SE	Nov. 23	--	8.6	28	49	289	167	40	0	51	#0	190	253	71
Kotzebue	Aug. 5	73	5	-39	9	15956	8.17	.82	1-2	49.1	3.4	8-9	78	80	79	77	13.3	E	42	E	Feb. 17	--	6.8	81	76	209	99	20	0	8	#1	210	257	124
McGrath	July 21	85	21	-57	20	14631	14.93	.87	8-9	80.3	6.1	2-3	73	80	75	65	4.7	NW	38	SE	Nov. 10	--	7.6	59	59	248	140	29	5	10	#24	157	240	106
Nome	Feb. 12	75	27	-34	12	14239	15.54	1.92	1-2	66.9	5.3	3-4	--	--	--	--	11.8	ENE	59	NE	Jan. 16	--	7.1	82	61	223	139	27	0	21	#2	176	247	90
Northway	July 20	80	21	-72	20	15792	11.70	1.34	18-19	41.7	5.5	16-17	71	79	71	59	5.6	NW	28	NNW	Jan. 12	--	8.2	24	67	275	104	13	18	36	#37	165	249	129
St. Paul Island	Sept. 5	51	9	5	13	10925	27.95	1.29	9-10	59.6	5.5	1	87	89	89	85	---	---	---	---	---	--	8.9	8	58	300	236	13	0	12	#0	75	183	0
Umiat	June 6	77	81	-51	21	20912	5.13	.35	3	33.7	3.6	19-20	--	--	--	--	---	---	---	---	---	--	---	---	---	---	---	---	---	---	---	---	---	---
Yakutat	Jan. 22	76	10	-22	22	9410	134.06	4.60	30-31	226.2	18.1	11-12	91	92	87	83	10.2	ESE	51	ESE	Apr. 20	--	8.6	27	47	292	249	54	2	28	#2	32	159	11

Data from airport unless otherwise indicated.  
 CO after station name indicates city office data, except where certain elements are from the air-  
 port, which are indicated by AP above each value.  
 \* Also on earlier dates.  
 \* Data entered in column headed "Fastest Mile" is the fastest mile observed. This station is not  
 equipped with automatic recording wind instrument.  
 † Wind direction to 8 compass points only.

# Number of days Maximum 70°F. or above for Alaskan Stations.  
 a Computed as of Midnight.  
 b Computed as of 7:00 a.m.  
 c Computed as of Noon  
 d Computed as of 7:00 p.m.  
 † Peak gust.



# GENERAL SUMMARY OF TORNADES IN THE UNITED STATES

## YEAR 1952

During 1952, 270 tornadoes were reported in the United States, and 15 other storms showed some evidence of tornadic winds. In comparison, records for the past 37 years show an average annual number of 156 tornadoes, ranging from 65 in 1919 to 300 in 1951. Tornadoes during the year caused an estimated property damage of \$35,193,903 and the loss of 230 lives. The loss of life was only slightly above the average annual number of 222, but the property damage was about two and one-half times greater than normal. However, caution must be observed in comparing 1952 tornado occurrences with those of past years. The number of tornado reports received is very largely dependent on the number of observers reporting such storms. In more recent years our tornado reporting network has become much more dense than previously. Consequently, we would expect to have more tornadoes reported simply because there are a greater number of people alerted to make these observations.

Tornadoes occurred during each month except October, on 104 days, and in 34 States. No tornadoes were reported from the District of Columbia, Alaska, Hawaii, the West Indies, or from the 14 states of Connecticut, Delaware, Idaho, Maine, Massachusetts, Nevada, New Hampshire, New Mexico, Oregon, Rhode Island, Utah, Vermont, Washington, and West Virginia. Three of the year's tornadoes crossed State boundaries; the first on March 21 from Mississippi to Tennessee, the second on July 19 from Montana to North Dakota, and the last on December 9 from Kentucky to Indiana. Thirty-five of the 270 tornadic storms were reported as distinct funnel clouds which failed to reach the ground; 11 in Kansas, 10 in Oklahoma, 3 in Iowa, 2 each in Minnesota and Texas, and 1 each in Colorado, Missouri, Nebraska, North Dakota, South Carolina, Tennessee, and Wyoming. Twelve of the reported tornadoes either originated as waterspouts or became waterspouts. Five of these occurred in Florida where two moved onto land from the Gulf of Mexico, two from Tampa Bay, and the fifth, originating over land, reached the ground in the West Palm Beach area, then lifted and became a waterspout over the Atlantic Ocean. Five waterspouts, also, were observed over Lake Michigan, one from Frankfort, and two each from Benton Harbor and St. Joseph. A small funnel-shaped cloud that passed over Lake Placid Village in New York, became a waterspout over Lake Mirror. Another waterspout formed in Albemarle Sound, N. C., crossed Nags Head Beach and then moved out to sea. Moderate property damage was caused by six of these waterspouts in their passage over land.

Oklahoma was visited by 29 tornadoes, the greatest number in any State during 1952, but only two of these caused property losses of over \$100,000 and no deaths were reported. Kansas was second for the year in reporting 26 tornadoes, with no loss of life and the damage from only one amounting to as much as \$250,000. Tennessee ranked third with 23 tornadoes, and the losses in property and life were both great. Only one tornado was recorded in each of the States of Arizona, New York, and Wisconsin.

The maximum tornado occurrence appeared somewhat earlier in the year than is usually the case. May has averaged the greatest number, based on records for the past 37 years, followed by June, then April in third place, and March in fourth. In 1952, during April 45 tornadoes were recorded

on 12 days; in June, 42 on 20 days; May and July each had 39 tornadoes, on 17 and 15 days, respectively; and in March, 32 occurred on 9 days. With the exception of October, in which no such storms occurred, December reported the least number of only 4.

The 1952 death total of 230 was greater than during any one of the past 4 years, and was exceeded in only 12 previous years during the 37-year record. This total, however, was only slightly above the 1916-1952 average of 222, during which period the annual loss of life ranged from 34 in 1951 to 794 in 1925. Two hundred and eight fatalities of the 1952 total of 230 resulted from the March 21 and 22 tornadoes which swept across Arkansas, Missouri, Mississippi, Alabama, Tennessee, and Kentucky. All of the 111 deaths in Arkansas occurred on March 21. This was the highest death toll for any State during 1952. Also, sixty-seven of the 74 total deaths for the year in Tennessee, 17 of the Missouri total of 18 all 9 of the total for Mississippi, and 4 of the total of 6 for Alabama resulted from these tornadoes of March 21 and 22. No loss of life was reported in Kentucky. This death toll of 208 on March 21-22 was one of the greatest from a series of tornadoes recorded in this country. Only 22 other fatalities were reported during the remaining months of the year. Deaths occurred in only 11 States in 1952.

The estimated property damage of \$35,193,903 for the United States in 1952 was about 2 1/2 times greater than the average for the period 1916 through 1952, and was exceeded only in 1927 and 1948; however, direct dollar-loss comparison with past years is meaningless because of the change in the price index. Tennessee suffered the greatest destruction of property during 1952, with losses of \$9,856,500 caused by the tornadoes which crossed the State on February 13 and 29, and on March 21 and 22. Arkansas ranked second in the amount of property destruction, with damage estimated at \$6,795,753, over \$6,500,000 of which was the result of the devastating tornadoes of March 21. Missouri followed in third place; the bulk of the \$4,300,150 estimated damage was caused by the tornadoes of March 21 (\$1,425,000), August 21 (\$1,500,000), and November 16 (\$1,300,000). The five States of Georgia, Iowa, Louisiana, Minnesota, and Pennsylvania each suffered damage during the year of over \$1,000,000. In Arizona, Michigan, and Wyoming, tornadoes were reported, but they either remained aloft or struck in open country with no property losses or only slight damage.

Nearly one-half of the estimated 1952 property destruction occurred during March. This loss of over \$15,000,000 greatly exceeded the 37-year average of approximately \$3,000,000 for that month and was due mainly to the very destructive tornadoes of March 21 and 22. On these 2 days the damage amounted to about \$14,000,000 in Arkansas, Missouri, and Tennessee. During the month of February the second greatest monthly loss of \$4,728,400 occurred, over \$4,000,000 of which resulted from the Tennessee tornadoes of the 13th and 29th. This great amount of property damage for February was over nine times greater than the average for that month during the period 1916 through 1952. April and June were in third and fourth places with damages of \$3,825,905 and \$3,766,200, respectively. With the exception of



# GENERAL SUMMARY OF TORNADOES IN THE UNITED STATES—Continued

YEAR 1952

October in which no tornadoes were reported, the least damage for a month was only \$20,000 in September.

Ten tornadoes causing property damage of \$1,000,000 or more each were recorded during 1952 in the States of Arkansas, Iowa, Missouri, Pennsylvania, and Tennessee. Five of these storms occurred during the disastrous series of tornadoes on March 21. The Arkansas tornado of that date, which crossed the State from Howard County north-eastward to Craighead County causing property destruction of over \$3,700,000 and a death toll of 57, was probably the outstanding tornado of the year in both property destruction and the loss of human life. Forty lives were lost on the same day in that State when another tornado crossed from Lonoke County to Poinsett County, with property damage estimated at over \$1,500,000. The tornado which struck the town of Fayetteville, Tenn., on February 29, was apparently the second most destructive as to value of property destroyed, with an estimated \$3,000,000 loss, but with only two fatalities. Another outstanding storm passed over Henderson, Chester County, Tenn., on March 21, incurring losses estimated at \$2,500,000 and taking a toll of 21 lives.

Of the 263 tornadoes on which the time of occurrence was reported, 213 or 81 percent occurred between noon and midnight, with the greatest activity between 4 and 5 p.m. The hour of least activity was between 1 and 2 a.m., with only one

tornado reported. As has been usual in past years the more Southern States reported tornadoic occurrences between midnight and noon. In Louisiana 7 of the 9, Georgia 7 of the 12, Florida 6 of the 10, Alabama 5 of the 11, and Oklahoma 8 of the 28 tornadoes, on which the time was given, happened during the first 12 hours of the day.

The prevailing direction of movement of tornadoes during 1952 was, as usual, from the southwest to the northeast, with over 64 percent traveling in that direction, which figure approximates the 37-year average of 61 percent. About 21 percent came from the west and 5 percent from the northwest, making 90 percent coming from a general westerly direction. See the tornado rose for 1952 presented in Figure 1.

The average length of tornado paths during 1952 was about 15 miles and the average width 252 yards. The longest continuous tornado path of the year crossed Harmon, Beckham, Roger Mills, and Dewey Counties, Okla., on April 20, the total length of the path being 99 miles. Two other long paths of about 90 miles each occurred on May 10 in South Carolina and on June 24 in Minnesota. Four other non-continuous long paths, covering distances of from 100 to 240 miles, were reported during the year. The shortest paths of destruction in 1952 occurred in Iowa on May 23 and in North Carolina on November 19 where paths of 110 and 100 yards, respectively, were reported.



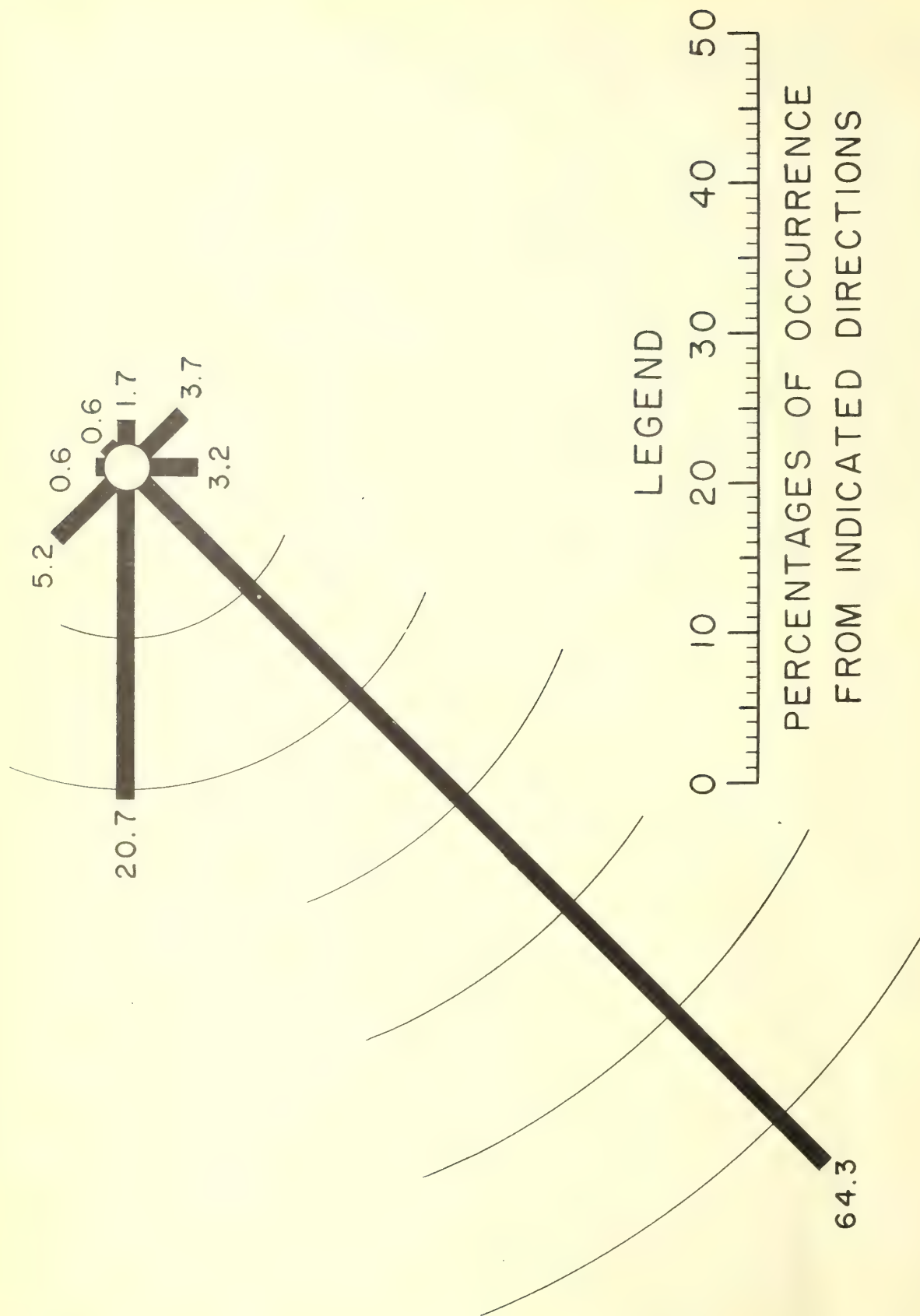


Figure 1.--Tornado rose for the United States, giving the percentage of tornadoes moving from the indicated directions during 1952.



# TORNADO DATA

Table 11

YEAR 1952

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
ALABAMA										
1. Jan. 22	A.m.	Tallapoosa	NE	(1)	(1)	0	0	\$5,000	0	Damaged 4 homes and 6 buildings; destroyed 9 buildings at Alexander City.
2. Feb. 13	8-10 p.m.	Fayette and Tuscaloosa	NE	5	100	1	14	17,500	0	Struck New Lexington, Tuscaloosa County, crossed into Fayette County. 4 homes and 7 buildings destroyed, 8 homes and 9 buildings damaged in Fayette County. 2 homes and 2 buildings destroyed, 7 homes and 8 buildings damaged in Tuscaloosa County.
3. Feb. 13	8:30-8:45 p.m.	Blount and Cullman	NE	(1)	400	0	6	40,000	0	Struck Garden City, Cullman County, crossed into Blount County. 4 homes and 16 buildings destroyed. 48 homes and 2 buildings damaged in Cullman County. 3 homes and 9 buildings destroyed, 7 homes and 4 buildings damaged in Blount County.
4. Feb. 13	9:30 p.m.	Jefferson	NE	(1)	200	1	26	165,000	0	Struck Adamsville, Graysville, and Pinson. 9 homes and 17 buildings destroyed, 55 homes and 54 buildings damaged.
5. Feb. 29	5 p.m.	DeKalb	NE	(1)	400	0	12	150,000	0	12 homes and 25 buildings destroyed, 20 homes and 35 buildings damaged.
6. Mar. 3	1:10 p.m.	Pickens	NE	3	440	0	6	50,000	0	Struck Gordo. 73 frame buildings destroyed, 52 damaged. Trees uprooted and utility poles downed.
7. Mar. 22	Afternoon	Morgan	NE	25	100	4	50	50,000	0	35 homes destroyed, 39 buildings damaged.
8. Apr. 4	6:20 a.m.	Mobile	NNE	1/5	200	0	2	80,000	0	Struck 1 mile southwest of Airport Station.
9. May 10	9-10 a.m.	Fayette	NE	1/4	50	0	0	200,000	0	3 separate and distinct tornadoes. 3 paths clearly shown; buildings unroofed, plate-glass windows broken, trees blown down, utility services disrupted.
10. May 10	9-10 a.m.	Fayette	NE							
11. May 10	9-10 a.m.	Fayette	NE							
ARIZONA										
1. Nov. 14	Evening	Yavapai	(1)	1/4	200	0	0	(2)	0	Struck in a stand of juniper and pinion trees; inside of area, devastation was complete; 15 miles northwest of Drake.
ARKANSAS										
1. Jan. 26	3:30 p.m.	Arkansas	NE	(1)	(1)	0	0	10,000	(2)	2 small tornadoes struck in vicinity of Almyra and Stuttgart within 30 minutes of each other. Considerable damage to outbuildings, power and phone lines, roofs, etc.
2. Jan. 26	4 p.m.	Arkansas	NE							
3. Feb. 13	4:30 p.m.	Mississippi	NE	1/4	(1)	0	5	(3)	(2)	A small tornado demolished home, unroofed another and scattered several outbuildings in Buckeye community 8 miles north of Manila.
4. Mar. 3	5:45 a.m.	Logan	(1)	(4)	50	0	0	998	0	Principal damage to roof of lumber yard in Booneville.
5. Mar. 21	3 p.m.	Howard	NE	13	900	7	9	151,500	(2)	In Dierks area 22 houses destroyed; considerable loss of livestock and poultry.
5. Mar. 21	4 p.m.	Saline	NE	9	440	0	0	39,000	0	Continuation of storm that hit Dierks. Several houses and barns destroyed, several damaged. Some loss of livestock. Principal damage in Paron area.
5. Mar. 21	P.m.	Faulkner	NE	(1)	(1)	0	6	15,000	0	Continuation of storm that hit Dierks and Paron. Principal damage to houses in Mayflower area of Lake Conway resort.
5. Mar. 21	5:15 p.m.	White	NE	40	(1)	50	325	3,500,000	(2)	Continuation of storm that hit Dierks, Paron, and Mayflower. First hit 2 miles south-southwest of Searcy, passed to east of town. Community of Kensett suffered considerable damage. Town of Judsonia lay squarely in path of storm and was completely leveled. Judsonia business district completely demolished. Storm continued inflicting heavy damage at Bald Knob. 385 homes destroyed, 560 damaged in County. Storm lifted 5 miles northeast of Bald Knob.
5. Mar. 21	P.m.	Jackson and Craighead	NE	(1)	(1)	0	6	21,000	(2)	Continuation of storm that hit in White County; again touched ground in southeastern Jackson County. 7 homes destroyed, 5 damaged. Storm lifted, was last observed in vicinity of Lake City, Craighead County.

See reference notes at end of table.



# TORNADO DATA

Table 11-Continued

YEAR 1952

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
ARKANSAS (Cont'd.)										
6. Mar. 21	5 p.m.	Pulaski	NE	(1)	(1)	0	0	0	0	Tornado cloud observed aloft north of North Little Rock. Apparently did not touch ground in Pulaski County.
6. Mar. 21	5-5:17 p. m.	Lonoke	NE	5	(1)	2	6	345,000	(2)	Northern storm of the 2 which moved across Lonoke County in almost parallel lines was apparently a continuation of storm sighted north of Little Rock. Touched ground in Wattensaw area.
6. Mar. 21	P.m.	Prairie	NE	5	440	5	15	150,000	0	Continuation of storm that struck Wattensaw. Struck Hickory Plains. Was on ground for full distance between the 2 communities.
6. Mar. 21	5:30-6:15 p.m.	Woodruff	NE	(1)	600	0	0	22,000	(2)	Continuation of storm that struck Wattensaw and Hickory Plains. Struck Georgetown and McCrory. Village of Georgetown almost completely demolished.
6. Mar. 21	P.m.	Cross	NE	(1)	(1)	4	35	150,000	(2)	Continuation of storm that struck Georgetown and McCrory. In the Hickory Ridge area 30 homes destroyed and 86 damaged.
6. Mar. 21	6:45-7:45 p.m.	Poinsett	NE	30	440	2	39	265,000	(2)	Storm that struck Hickory Ridge apparently continued striking 3 miles north of Harrisburg and continued on the ground to Trumann.
6. Mar. 21	7:30-7:45 p.m.	Mississippi	NE	40	800	1	57	514,000	(2)	Continuation of storm that struck Harrisburg and Trumann. Storm went aloft east-northeast of Blytheville.
7. Mar. 21	5-5:17p. m.	Lonoke	NE	7	(1)	9	39	300,500	(2)	The southern storm of the 2 which crossed Lonoke County struck first in New England passing through town. Considerable damage in business district and all houses in path destroyed. Storm again touched ground 5 miles southeast of Carlisle.
7. Mar. 21	P.m.	Prairie	NE	7	440	1	5	5,500	(2)	Continuation of storm that struck Carlisle, then struck Hazen.
7. Mar. 21	5:30-6:15 p.m.	Woodruff	NE	21	880	29	180	767,000	(2)	Continuation of storm that struck Hazen, then struck Cotton Plant. Extensive damage in northern part of Cotton Plant and village of Hilleman.
7. Mar. 21	P.M.	Cross	NE	(1)	(1)	0	0	0	0	Storm that struck Cotton Plant and Hilleman apparently crossed Cross County aloft.
7. Mar. 21	6:45-7:45 p.m.	Poinsett	NE	10	200	1	50	500,000	(2)	Continuation of storm that struck Cotton Plant and Hilleman and crossed Cross County aloft, then struck Marked Tree.
8. Apr. 22	6:45 p.m.	Columbia	(1)	1/4	150	0	0	55	0	A small tornado struck 1 1/2 miles north of Magnolia. Damage was limited, shingles torn from roofs of 2 buildings and utility pole destroyed.
9. Apr. 22	7:15 p.m.	Independence	NE	(4)	100	0	0	1,050	0	A small tornado struck ground near Pleasant Valley Cemetery, 8 miles north of Batesville. A large tree blown onto a flat-bed truck which was almost a total loss. A house and barn damaged and several outbuildings either damaged or destroyed.
10. June 4	3:35 p.m.	Lawrence	E	(1)	(1)	0	0	(2)	(2)	Funnel formed in cotton field near campus of Southern Baptist College, 5 miles north of Walnut Ridge. An empty farm house destroyed.
11. June 18	2:30 p.m.	Pulaski	ENE	(4)	(5)	0	0	(2)	0	Damage confined to narrow swath through small timber. 2 small barns destroyed at Scott.
12. July 16	2:18 p.m.	Miller	NW	4	50	0	0	12,150	(2)	Funnel first struck Rondo community 3 miles southeast of Texarkana Airport, moved to a point 1 mile northwest of Airport. Hangar at Airport extensively damaged. 1 house in Rondo damaged, several barns and outhouses destroyed.
13. July 16	3:15 p.m.	Miller	(1)	(1)	(1)	0	0	(1)	(1)	Barograph trace indicates possibility of tornado passing near Texarkana Airport.
14. July 16	4:05 p.m.	Miller	NW	(1)	(1)	0	0			This funnel covered practically same route as the one at 2:18 p.m., but swerved slightly missing buildings at Airport. It damaged 1 house in Rondo, destroyed a garage and several barns near Rondo, tore down 50 yards of fence, and broke power lines at Airport. Damage estimates included with that of the 2:18 storm.

See reference notes at end of table.



# TORNADO DATA

Table 11—Continued

YEAR 1952

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
ARKANSAS (Cont'd.)										
15. Nov. 17	4:30 p.m.	Polk and Scott	NE	40	100	0	2	25,000	1,000	Storm first struck at point 10 miles west of Mena in Polk County at 4:30 p.m. It was next reported at 4:55 p.m. at a point 5 miles south of Waldron in Scott County. Storm last reported 5 miles north of Pleasant Valley community in Scott County. In Polk County, 2 barns destroyed, timber damaged, and hay destroyed in fields. In Scott County, 12 houses damaged and 1 house destroyed. Considerable damage to timber, several farm animals killed, 2 persons injured when house 5 miles south of Waldron destroyed.
CALIFORNIA										
1. Nov. 15	11 a.m.	Orange	NE	1/3	34	0	0	100,000	0	Newport Harbor area. 2 roofs damaged severely. Some tiles lifted from building. East end of Lido Isle affected; continued toward Irvine and El Toro Marine Base. Automobile twisted end for end on Highway 101 near bridge. Damages of \$100,000 reported at Paramount Studios.
2. Dec. 20	(1)	Los Angeles	(1)	(1)	(1)	0	0	(2)	0	Small tornado moved across north end of San Fernando Valley, uprooting trees and causing other minor damage.
3. Dec. 20	(1)	Los Angeles	(1)	(1)	(1)	0	0	(3)	0	Small tornado passed over Weather Bureau Office at Burbank accompanied by gusty surface winds and hailstones of 1/2 to 3/4 inch in diameter.
COLORADO										
1. May 8	1:30-1:35 p.m.	Kit Carson	E	1/4	200	0	1	11,300	500	Destroyed farm buildings and equipment; killed poultry and livestock in area 12 miles northeast of Stratton.
2. May 15	2:04-2:20 p.m.	Weld	SW	2	150	0	4	10,000	0	Damage limited to farm buildings southeast of Kersey.
3. May 21	4:40-4:50 p.m.	Jefferson	(1)	(1)	(1)	0	0	(2)	0	As disturbance did not reach ground damage was light. Some birds killed when drawn into funnel. Observed at Arvada.
4. June 26	4:30-5p.m.	Washington	NE	7		0	0	750	50,000	Damage mainly to crops, slight to property.
CONNECTICUT										
(None reported)										
DELAWARE										
(None reported)										
DIST. OF COLUMBIA										
(None reported)										
FLORIDA										
1. Jan. 28	5:30-5:45 a.m.	Jackson	ENE	1/10	35	0	3	9,000	0	Occurred 13 miles southeast of Compass Lake. Destroyed a home and wrecked an automobile.
2. Jan. 28	7:50 a.m.	Leon	ENE	1 1/2	35	0	0	10,000	0	Occurred 4 miles north-northeast of Tallahassee. Homes and other buildings damaged, sign boards wrecked, and trees downed.
3. Feb. 20	10:10 a.m.	Bay	NE	1 1/2	75	0	4	10,000	0	1 home destroyed, 12 homes and other buildings damaged at Millville, near Panama City.
4. Feb. 26	11:18 a.m.	Palm Beach	(1)	(1)	(1)	0	0	0	0	Waterspout, or "funnel" cloud, observed over water area. Some doubt as to surface contact.
5. Feb. 26	11:20-11:40 a.m.	Palm Beach	NE	1 1/2	15	0	0	1,100	500	Occurred 3 1/2 miles west of Hypoluxo. Tumbled an automobile, damaged buildings and fernery.
6. Apr. 4	10:20a.m.	Bay	NE	(4)	20	0	1	6,000	0	Waterspout moved inland at Panama City Beach damaging beach homes.
7. May 23	2:30 p.m.	Hernando	(1)	(1)	(1)	0	1	1,000	(3)	Occurred near Brooksville. Wrecked poultry house and killed a number of chickens.
8. May 30	Noon	Pinellas	(1)	(4)	(1)	0	0	2,500	0	Waterspout moved inland at Belleair Beach. Partly unroofed apartment building.
9. June 13	1 p.m.	Pinellas	W	(4)	(1)	0	0	(3)	0	Waterspout over Tampa Bay moved inland at St. Petersburg, unroofing a home.

See reference notes at end of table.



# TORNADO DATA

Table 11—Continued

YEAR 1952

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
FLORIDA (Cont'd.)										
10. June 29	(1)	Pinellas	W	(4)	(1)	0	0	(3)	0	Waterspout over Tampa Bay moved inland at St. Petersburg, unroofing a home and breaking windows.
11. Aug. 16	3:45 p.m.	Palm Beach	SE	1/5	15	0	0	2,000	0	House demolished and 2 cows killed 10 miles northwest of West Palm Beach Airport.
GEORGIA										
1. Jan. 22	7:40-8 a.m.	Mitchell and Colquitt	NE	8-10	300-400	0	8	100,800	500	Sale City to Poplar Arbor community, most of losses at latter place; 6 homes and 12 barns demolished, several livestock killed, with many trees and utility lines blown down.
2. Jan. 28	4:40-4:45 a.m.	Monroe	E	4	400	0	0	15,000	0	At Forsyth; church and warehouse heavily damaged, other miscellaneous damage including numerous roofs, television aerials, and utility lines.
3. Jan. 28	7-7:15 a.m.	Dougherty	NE	1-2	100	0	1	10,000	0	In northern Albany, 60-mile winds and funnel cloud observed. Considerable utility line damage, 600 telephones knocked out, considerable miscellaneous damage.
4. Jan. 28	7:30 a.m.	Worth	NE	(1)	(1)	0	0	5,000	0	Locally at Poulan; church demolished, several homes and smaller buildings damaged, some utility lines blown down.
5. Jan. 28	8:10-8:25 a.m.	Tift	NE	(4)	400	0	2	100,000	0	In Tifton; large number of homes and business places substantially damaged, many small buildings demolished; much of damage due to falling trees.
6. Jan. 28	8:30 a.m.	Emanuel	NE	(1)	(1)	0	1	3,000	0	Local storm at Swainsboro; farm house demolished, injuring 1 person.
7. Feb. 29	8 p.m.	Franklin	E	10	50-100	0	0	50,000	10,000	In rural section through Strange district; 3 or more homes and numerous smaller buildings destroyed, many others damaged; considerable poultry loss, utility lines damaged.
8. Feb. 29	8:30 p.m.	Banks	E	10	200-440	0	3	80,000	(2)	Rural section, Hickory Flat to Nails Creek; 10 or more homes, a school, and many chicken houses destroyed; 25 homes and smaller buildings badly damaged and many chicks lost.
9. Feb. 29	9:15-9:40 p.m.	Jackson	E	1/4	100	0	5	9,300	0	White Plains Church community, 6 miles west of Jefferson. Large home and chicken house demolished, killing 1,000 chickens; several other buildings unroofed.
10. Mar. 3	9:11-9:30 p.m.	Bibb	SE	5-6	400	0	4	250,000	0	Bloomfield Road, Macon; 4 homes demolished, 12 homes and business places heavily damaged, total of 400 houses affected; many trees and utility lines blown down, knocking out 1,800 telephones.
11. Mar. 13	3:20-3:25 p.m.	Lee	NNE	1	100-200	0	0	18,550	0	5 miles south of Leesburg, 29 utility line poles and 20,000 feet of wire blown down; storage barn destroyed, 2 others damaged.
12. May 11	7:20 a.m.	Berrien	NE	5	200	0	10	750,000	(2)	Through heart of Alapaha, extensive heavy damages to homes and other structures; heavy to total loss to city water tank, 32 buildings, 20 automobiles; more than 1,000 large trees and many utility lines blown down, communications to town completely broken for several hours.
IDaho										
(None reported)										
ILLINOIS										
1. Mar. 18	6:07 p.m.	Greene	NE	3	10	0	1	25,100	0	Damaged residences and outbuildings at Kane.
2. Mar. 18	6:21 p.m.	Randolph	NE	4	100	0	0	50,000	0	Most of damage to shoe factory at Evansville.
3. May 24	5:50 p.m.	St. Clair	NE	(1)	(1)	0	0	10,000	1,000	Damaged 14 planes at Scott Air Force Base, Belleville.
4. July 17	5 p.m.	Mercer	(1)	(1)	(1)	0	0	1,000	500	Damaged rural property near Seaton.
INDIANA										
1. May 9	6:45 p.m.	Marion and Hancock	ENE	15-20	35	0	0	55,000	0	Moved from east of Indianapolis, Marion County to Shirley, Hancock County.
*2. Dec. 9	3:50 p.m.	Perry	NE	32	(1)	0	0	300,000	0	Moved in from Kentucky, striking Tell City. Length of path in both states 32 miles.

See reference notes at end of table.



# TORNADO DATA

Table 11--Continued

YEAR 1952

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
IOWA										
1. May 23	1 p.m.	Butler	N	1/16	17	0	0	250	0	At Dumont long tapering funnel; un-roofed town garage, interrupted electric service.
2. May 23	3 p.m.	Worth	NE	(4)	(5)	0	0	3,000	(2)	Funnel cloud moved at 20 to 25 m.p.h.; 1 barn demolished near Grafton.
3. June 2	6:30-7 p. m.	Grundy	SE-E	3	100	1	2	200,000	(2)	Demolished 4 farmsteads, 1 schoolhouse, 1 machinshed, damaged other buildings at Buck Grove.
4. June 23	6:30-7:15 p.m.	Cherokee	ENE	30	400	0	4	800,000	200,000	Damage to 53 farmsteads of which 13 were completely demolished and 34 suffered major damages. Tornado touched southern part of Cleghorn, passed 4 miles south of Marcus, and about 2 miles south and east of Larrabee.
5. July 2	5:50-6:10 p.m.	Lyon	(1)	(4)	17	0	0	7,000	(2)	4 or 5 funnel clouds observed east of Rock Rapids, south of Midland, and north of Edna; 1 barn severely damaged.
6. July 2	5:50-6:10 p.m.	Lyon								
7. July 2	5:50-6:10 p.m.	Lyon								
8. July 2	5:50-6:10 p.m.	Lyon								
9. Nov. 17	3:20 p.m.	Muscatine	(1)	(4)	(5)	0	0	(2)	0	Struck 1 1/2 miles south of Moscow; 1 barn damaged, 1,000 bales of hay damaged by rain.
KANSAS										
1. Apr. 8	1:30 p.m.	Edwards	(1)	(4)	(5)	0	0	500	0	Demolished garage and brooder house; moved barn on foundation; identified by roar.
2. Apr. 22	5:30 p.m.	Riley	(1)	(1)	(1)	0	0	0	0	Sighted 10 miles west of Manhattan; appeared to dip to ground twice.
3. Apr. 29	1:30 p.m.	Meade	NNE	(1)	(1)	0	0	0	0	Dipped to ground several times in open country in southeastern Meade County.
4. Apr. 30	4:20-7:14 p.m.	Ford and Stafford	ENE	(1)	(5)	0	0	0	0	First sighted 11 miles east of Dodge City; later 7 miles northeast of St. John in Stafford County.
5. Apr. 30	About 7 p.m.	Stafford	(1)	(1)	(1)	0	0	0	0	3 funnels in addition to above sighted near St. John.
6. Apr. 30	About 7 p.m.	Stafford	(1)	(1)	(1)	0	0	0	0	
7. Apr. 30	About 7 p.m.	Stafford	(1)	(1)	(1)	0	0	0	0	
8. Apr. 30	8:50 p.m.	Ford	ENE	(1)	(1)	0	0	0	0	Sighted by at least 5 persons 8 to 10 miles southwest of Dodge City.
9. May 21	6 p.m.	Osborne	ENE	(1)	(1)	0	0	0	0	
10. May 21	7:30 p.m.	Republic	NNE	(4)	100	0	0	5,400	0	Observed coming to ground in pasture 4 miles northwest of Alton.
11. May 22	5:15 p.m.	Douglas, Leavenworth, Wyandotte, and Johnson	ENE	1/4	22	0	13	250,000	0	Destroyed all buildings on farm, except house. Killed 50 chickens and 6 pigs.
12. June 8	9:30 p.m.	Franklin	NE	(1)	(1)	0	0	0	0	Struck first in northeast Lawrence, destroying alfalfa dehydrator, next dipped in southern Leavenworth County just north of Kansas River and continued into Johnson and Wyandotte Counties. Destroyed 12 houses and 67 other buildings; damaged many.
13. June 18	4 p.m.	Lincoln	(1)	(1)	(1)	0	0	0	0	
14. June 19	7:10 p.m.	Sumner	NE	3	60	0	0	10,000	0	Sighted aloft 2 miles north of Ottawa during heavy rain and windstorm.
15. June 21	7 p.m.	Leavenworth and Wyandotte	E	50	(1)	0	0	25,000	0	About 4 miles southwest of Lincoln during wind and hailstorm; did not reach ground.
16. June 26	5:15 p.m.	Phillips	ENE	9	(5)	0	0	14,000	10,000	About 5 miles south of Wellington, destroyed 2 buildings on farm; lesser damage to 3 other farms; funnel plainly visible.
17. June 27	2:30 p.m.	Norton	(1)	3	100	0	0	2,000	300	Destruction at several locations within long strip of severe straight wind (Tonganoxie to Kansas City); conclusion that tornadic winds aloft occasionally reached surface. No funnel seen, but whistling sounds noted.
18. July 6	4-5 p.m.	Cheyenne	(1)	(1)	(1)	0	0			Formed southwest of Phillipsburg, moved along surface 6 miles, lifted and dipped again east of Phillipsburg for 3 miles. 8 buildings wrecked and crops in path destroyed.
19. July 6	4-5 p.m.	Cheyenne	(1)	(1)	(1)	0	0			Damaged small buildings and family car 6 1/2 miles southeast Norcatur.
20. July 6	4-5 p.m.	Cheyenne	(1)	(1)	(1)	0	0			Funnel seen 12 miles west and 2 miles south of St. Francis; no damage.
21. July 6	3 p.m.	Decatur	NE	(1)	(1)	0	0			Sighted aloft south of St. Francis.
										Sighted aloft northwest of St. Francis.
										Struck northwest edge of Norcatur; leveled buildings on 2 farms, 9 and 12 miles north.

See reference notes at end of table.



## TORNADO DATA

Table 11--Continued

YEAR 1952

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
KANSAS (Cont'd.)										
22. July 6	5 p.m.	Sherman	(1)	(1)	(1)	0	0	3,000	0	Barn destroyed 5 miles south-southeast of Ruleton. Damage includes all storms on 6th.
23. Aug. 7	6-6:30 p. m.	Lincoln	(1)	(1)	(1)	0	0	(3)	0	Heavy destruction in area of squall line activity. Funnel observed; church seemed to "explode."
24. Aug. 7	11:40 p.m.	Harper	(1)	(1)	(1)	0	0	0	0	2 residents of area saw funnel and heard roar; 8 miles southwest of Attica.
25. Aug. 14	9:30 p.m.	Dickinson	(1)	1 1/2	100	0	0	10,000	0	Wrecked church spire, damaged buildings on 3 farms; 3 miles northwest of Herington.
26. Nov. 16-17	Midnight	Brown	(1)	(1)	(1)	0	0	(3)	0	All buildings, except home, on farm 8 miles northwest of Horton destroyed or damaged.
KENTUCKY										
1. Mar. 22	12:05-12:10 a. m.	Larue	(1)	3	300	0	18	250,000	(2)	About a dozen homes destroyed or damaged, warehouse unroofed, buildings at Larue County Fairgrounds demolished, a number of barns knocked down. Tornado hit southern part of Hodgenville.
*2. Dec. 9	2-4 p.m.	Crittenden, Daviess, and Hancock	NE	32	880	0	3	200,000	50,000	First sighted at Repton, Crittenden County; assumed to be of "bounding" type, first reached ground in Crittenden County, then reappeared more than an hour later in West Louisville in Daviess County, moved into Hancock County and crossed Ohio River into Indiana in vicinity of Tell City, Ind. Storm accompanied by hail. Cloud described as a "funnel-shaped puff of smoke." Damage occurred in Daviess and Hancock Counties. Length of path in both States 32 miles.
LOUISIANA										
1. Feb. 13	4 a.m.	Caddo	NE	(1)	(1)	0	0	25,000	0	Tornado struck Rodessa. Hail as far south as Vivian; 1 home burned by lightning, 3 oil rigs down, barn blown off foundation.
2. Feb. 19	9 p.m.	Caddo	NE	1/2	200	0	5	15,000	0	In south Caddo Parish, 2 homes destroyed, 3 damaged.
3. Mar. 10	8:30-9:45 a.m.	Desoto, Bossier, Webster and Claiborne	NE	46	300-1000	0	0	135,000	0	Developed in community of Carnahan, Desoto Parish; moved northeastward across Lake Bistineau to Dubberly in Webster Parish and to community of Harris and vicinity of Homer in Claiborne Parish. Damages in Carnahan \$25,000, Dubberly \$100,000, and in Harris \$10,000.
4. Apr. 3	11 p.m.	Claiborne	NE	2	100	0	0	10,000	0	Moved southwest to northeast. Homes unroofed or twisted off foundations.
5. Apr. 4	2-3 a.m.	Jefferson Davis and Acadia	NE	40	100	0	10	500,000	0	In Ardoin's Cove, Acadia Parish, only 2 out of 20 homes left standing. Damage less at other places.
6. Apr. 4	3 a.m.	St. Landry and St. Martin	NE	23	70	4	33	62,000	50,000	Moved from Bristol through Arnaudville to Bayou Portage; hit and skip type.
7. Apr. 4	3:30 a.m.	St. Mary	NE	3	20	0	3	500,000	10,000	Crossed U.S. 90, 1/2 mile east of Jeanerette and moved to Charenton.
8. Apr. 23	9:15 a.m.	Tangipahoa	(1)	(1)	(1)	0	0	3,000	0	2 miles south of Kentwood; passed over thinly settled area, damaged homes and barns.
9. May 19	9 a.m.	Terrebonne	(1)	1	30	0	0	5,000	(2)	Very small, short-lived tornado hit community 2 miles southeast of Houma.
MARYLAND										
1. Apr. 5	11:30 a.m.	Frederick	NE	(1)	(1)	0	0	(3)	(3)	Occurred in Middletown Valley. Power lines disrupted, barns and trees damaged.
2. Apr. 5	P.m.	Frederick	(1)	(1)	(1)	0	1	(3)	(3)	At Thurmont, power lines disrupted, barns, trees, etc., damaged. Man sucked from doorway and carried 30 feet.
3. Apr. 5	P.m.	Caroline	(1)	(1)	(1)	0	0	(3)	0	Cloud in shape of funnel dipped into pond and carried water aloft. Farm buildings damaged. Occurred at Maryland.
4. Aug. 31	11 p.m.	Montgomery	(1)	2	70	0	0	20,000	0	At Potomac 3 houses damaged, 1 extensively; 2 other farm buildings demolished. Path traced for about 1/2 mile then apparently lifted, but reached surface 1 mile further northwest where path traced for about 1/2 mile, then lifted.
MAINE										
(None reported)										

See reference notes at end of table.



# TORNADO DATA

Table 11--Continued

YEAR 1952

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
MASSACHUSETTS										
(None reported)										
MICHIGAN										
1. Aug. 12	1:02 p.m.	Benzie	(1)	0	0	0	0	0	0	Waterspout and tornado-like cloud observed from Frankfort over Lake Michigan.
2. Sept. 22	2-5 p.m.	Berrien	NE	0	0	0	0	0	0	Several waterspouts observed from Benton
3. Sept. 22	2-5 p.m.	Berrien	NE	0	0	0	0	0	0	Harbor market and St. Joseph over Lake
4. Sept. 22	2-5 p.m.	Berrien	NE	0	0	0	0	0	0	Michigan. One seen 10 miles west of
5. Sept. 22	2-5 p.m.	Berrien	NE	0	0	0	0	0	0	St. Joseph Coast Guard Station at 2 p.m. moving northeastward. Another observed at 5 p.m. 3/4 to 1 mile away from St. Joseph pumping station. Funnel with diameter of about 25 feet at lower end, withdrew to a dark cloud upon reaching shore. Water rose higher than light house on pier. At Benton Harbor several such clouds observed during afternoon.
MINNESOTA										
1. June 23	4:30 p.m.	Swift	NE	12						Struck about 2 1/2 miles southwest of Benson. Damage included in tornadoes same date in Cottonwood, Renville, Wright, and Hennepin Counties.
2. June 23	8:30 p.m.	Cottonwood, Renville, Wright, and Hennepin	NE	150	220	0	10	675,000	C	Extensive property damage; much poultry and some livestock perished; hundreds of trees uprooted; wires, poles down. 3 funnels observed about 8 miles north of Danube; all buildings on 1 farm destroyed. Path not continuous. Damage includes all storms on 23d.
3. June 23	8:30 p.m.	Cottonwood, Renville, Wright, and Hennepin	NE							
4. June 23	8:30 p.m.	Cottonwood, Renville, Wright, and Hennepin	NE							
5. June 23	8:30 p.m.	Cottonwood, Renville, Wright, and Hennepin								
6. June 24	6:30-7:15 p.m.	Le Sueur, Hennepin, Ramsey, and Anoka	NE	90	267	0	15	900,000	C	Extensive property damage; much poultry and some livestock perished; hundreds of trees unrooted; poles, and wires down. A number of reports of funnels observed. A large trailer truck heavily loaded with tombstones lifted off road and wrecked in extreme southern Anoka County. Path not continuous.
7. July 2	4 p.m.	Grant	SE	5	217	0	0	20,000	C	Possible tornado. A number of small out-buildings demolished; barns, houses, and garages damaged; much poultry and some livestock perished; many trees uprooted. Reports of several funnels observed in the Norcross area.
8. July 2	6:05 p.m.	Luverne	(1)	(1)	(1)	0	0	0	0	Reports of several funnels aloft in vicinity of Luverne.
9. July 2	6:05 p.m.	Luverne								
10. July 16	7 p.m.	Aitkin	NE	10	333	0	0	50,000	C	Possible tornado. No funnel observed, but uprooted trees lying on ground in different directions. Spores of hay driven into power poles. A house, barn, garage, trailer home, and 2 automobiles demolished; some livestock injured; extensive damage to power and communication lines. Heavy to excessive rains accompanied storm.
11. July 27	6:25 p.m.	Freeborn	E	1 1/2	133	0	4	300,000	C	Possible tornado. Most of buildings in village of Manchester demolished; many trees uprooted; several farm buildings east of village destroyed. Straws driven into wood.
12. Aug. 27	3:25-4:20 p.m.	Stevens	NE	40	200	0	3	25,000	C	Possible tornado. Many trees uprooted; large barn demolished; outbuildings, filling station, houses, and buildings damaged; poles, and wires down. A number of reports of a funnel observed about a mile west of Morris. Path not continuous.

See reference notes at end of table.



# TORNADO DATA

Table 11--Continued

YEAR 1952

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
MISSISSIPPI										
1. Feb. 13	7:30 p.m.	Neshoba	(1)	(1)	(1)	0	0	15,000	5,000	Lightning damaged radio station tower in Philadelphia. Hail broke windows, damaged cars; wind mill twisted by tornado; gardens and oats damaged.
2. Feb. 13	10:30 p.m.	Hancock	(1)	(1)	(1)	0	2	12,000	0	
3. Feb. 13	10:30 p.m.	Monroe	(1)	(1)	(1)	0	1	20,000	0	
*4. Mar. 21	10 p.m.	Marshall	NE	20	100	9	24	300,000	0	Moved through Byhalia and Casey to Moscow, Tennessee. Major damage in settlement on edge of Byhalia.
5. Mar. 21	8:30 p.m.	Madison	(1)	(1)	20	0	1	1,000	500	Funnel clearly seen at Madison Station, lifting and dropping, moving very slowly; only hit ground in a few spots and dissipated rapidly.
6. July 29	4 p.m.	Covington	(1)	(1)	(1)	0	0	17,000	0	3 buildings destroyed, 14 damaged.
7. Aug. 3	3:45 p.m.	LaFayette	(1)	3/10	200	0	0	15,000	0	Funnel reported; some outbuildings demolished, many roofs damaged.
MISSOURI										
1. Feb. 13	5:10 p.m.	Pemiscot	(1)	(1)	100	0	0	3,000	0	Struck 10 miles west of Steele. Funnel touched ground twice. 2 big barns destroyed, others damaged.
2. Mar. 18	5:30 p.m.	St. Francois and St. Genevieve	NE	15	35-100	0	1	35,000	5,000	Passed 1 mile south of Farmington. 2 homes destroyed, 16 damaged. Stored hay damaged. 45 other buildings hit.
3. Mar. 18	6:30 p.m.	Cape Girardeau	NE	3	500	0	0	25,000	(2)	Near Burfordville 20 buildings hit.
4. Mar. 21	8 p.m.	Pemiscot	E	12	up to 2,500	17	100	1,375,000	50,000	Cooter to Cottonwood Point, 200 homes hit. Livestock lost.
5. May 7	4-4:30 p.m.	Gentry	(1)	1-1/2	400	0	0	150	C	3 miles north of King City; 2 funnels united, demolishing barn.
6. May 22	7-7:10 p.m.	Jackson	(1)	(1)	(1)	0	0	1,000	0	A few buildings damaged at Lake Lotowana.
7. May 22	9 p.m.	Jackson	(1)	(1)	(1)	0	0	0	0	Funnel 1 mile north of Lees Summit.
8. July 17	4:15 p.m.	Montgomery	(1)	(1)	(1)	0	0	6,000	0	One farm hit near Montgomery City.
9. Aug. 21	12:30 a.m.	Pettis	(1)	3	300	1	13	1,500,000	0	State Fair in progress at Sedalia; midway destroyed. Man killed when house trailer destroyed.
10. Nov. 16	4-5:30 p.m.	Nodaway	(1)	(1)	600	0	2	1,300,000	C	\$50,000 damage at Burlington Junction. At Hopkins, half of homes and commercial buildings hit, 2 people injured.
MONTANA										
1. July 19	4:30 p.m.	Fallon	E	50	(1)	0	0	100,000	(2)	Roofs blown off; automobiles damaged by flying debris at Baker.
*2. July 19	7:30 p.m.	Wibaux	E	15	(1)	1	2	200,000	126,100	Struck Wibaux. 1 large farm establishment totally destroyed and many roofs blown off. Entered Golden Valley County, N.Dak.
NEBRASKA										
1. Apr. 29	4 p.m.	Furnas	NE	1/4	(5)	0	0	(2)	0	A few farm sheds twisted and roofs damaged northeast of Beaver City.
2. May 8	Afternoon	Cheyenne	N	(1)	(1)	0	1	(3)	(2)	1 set of farm buildings destroyed south of Potter.
3. May 13	Evening	Cheyenne	(1)	(1)	(1)	0	0	(3)	(2)	Farm buildings and car badly damaged.
4. May 26	5 p.m.	Cheyenne	NE	(1)	(1)	0	0	(2)	0	A few roofs removed.
5. June 15	Evening	Holt	(1)	(1)	(1)	0	0	7,000	0	Drive-in screen destroyed near C'Neill.
6. June 26	10 p.m.	Saline	(1)	5	(5)	0	0	(3)	0	Several farm buildings blown down east of Crete.
7. July 12	(1)	Deuel	(1)	(1)	(1)	0	0	0	0	Tornado funnel 5,000 feet in height; had well-developed dust cloud at base. Appeared to be moving over open wheat fields; observed for period of 20 to 25 minutes, 27 miles east-southeast of Sidney.
8. Aug. 13	6 p.m.	Saunders and Cass	E	30	110-120	0	20	88,500	0	Struck in Wahoo and Ashland areas, Saunders County, and continued across Cass County.
9. Aug. 13	6:15 p.m.	Butler and Colfax	E	20	(5)	0	0	(3)	0	7 sets of farm buildings badly damaged or destroyed; 6 hay stacks scattered and lost. Struck in Richland and David City areas.
NEVADA										
(None reported)										
NEW HAMPSHIRE										
(None reported)										
NEW JERSEY										
1. Apr. 5	5:10 p.m.	Union	E	1/8	35	0	0	5,000	0	In Clark Township small tornado of weak intensity. Wall of school under construction blown down, shingles and siding from houses and chimneys torn down, trees twisted, and tools, tool sheds, loose lumber, and bundles of shingles blown away and scattered. Funnel-shaped cloud observed.
See reference notes at end of table.										

See reference notes at end of table.



# TORNADO DATA

Table 11--Continued

YEAR 1952

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
NEW JERSEY (Cont'd)										
2. Aug. 10	10:04a.m.	Burlington, Ocean and Monmouth	NE	45	100	0	0	25,000	0	About \$12,000 damage at Cookstown, \$3,000 at McGuire Air Base, and remainder in Monmouth County near Leonardo and Sandy Hook to trees, utility lines, barns, and garages. Had tornadic characteristics, although no funnel-shaped cloud seen. Not continuous path.
NEW MEXICO										
(None reported)										
NEW YORK										
1. May 6	2 p.m.	Essex	NE	5	200	0	0	10,000	0	Passed over Lake Placid Village. Raised waterspout 50 to 100 feet high in Mirror Lake. Windows broken, porches and roofs ripped off, trees uprooted and broken.
NORTH CAROLINA										
1. Apr. 5	1:45 a.m.	Wake	N	6	300	0	0	15,000	0	At Green Level community 7 dwellings damaged and several smaller farm buildings destroyed; trees uprooted.
2. May 10	(1)	Bertie and Halifax	(1)	(1)	(1)	0	6	(3)	(3)	Red Cross reported 2 homes destroyed, 6 damaged; 19 other buildings hit.
3. May 20	(1)	Hyde	(1)	(1)	(1)	0	2	(3)	0	Red Cross reported 1 home destroyed and 7 damaged.
4. July 23	(1)	Halifax	(1)	(1)	(1)	0	0	40,000	20,000	New tourist court partially destroyed and crops damaged.
5. Aug. 31	(1)	Stokes	(1)	(1)	(1)	0	0	5,000	0	Several farm buildings destroyed or damaged.
6. Sept. 17	12:30p.m.	Dare	SE	1	50	0	0	20,000	0	Originated in Albemarle Sound, crossed beach at Nags Head. Destroyed 1 beach cottage and damaged several others, then moved out to sea.
7. Nov. 19	11:37p.m.	Granville	(1)	(6)100	50	0	1	200,000	0	Main building and several others of Oak Hill Consolidated School badly damaged.
NORTH DAKOTA										
1. June 10	5 p.m.	Golden Valley	NNW	8	300	0	0	15,000	0	Occurred in vicinity of Beach. Tornado missed farms, other twister-like winds did most of damage.
2. June 10	Evening	Stark	(1)	(1)	(1)	0	0	30,000	0	Damage at Dickinson and 11 miles west.
3. June 15	Early evening	Wells	NE	1	(1)	0	1	10,000	0	Struck 6 miles south of Heaton.
4. June 20	(1)	Mount Rail	(1)	(1)	(1)	0	0	0	0	Believed not to have touched ground. Observed south of Parshall.
5. July 1	6 p.m.	Burleigh and Kidder	NE	50	100-200	1	2	300,000	0	Struck first 12 miles southwest of Wing, moved to beyond Tuttle.
6. July 1	5 p.m.	McKenzie	ENE	5	100	0	0	25,000	0	Area from Alexander to Watford City.
7. July 2	2 p.m.	Richland	SE	1/2	(1)	0	0	5,100	0	Struck in area 2 miles west of Hankinson, struck again 10 miles south of Hankinson.
8. July 9	Afternoon	Grand Forks	(1)	(1)	(1)	0	0	10,000	0	Tornado touched ground briefly, destroying a barn near Grand Forks.
9. *July 19	Afternoon	Golden Valley	E	(1)	(1)	1	3	10,000	0	Started in Wibaux County, Mont.
10. July 24	Evening	Stutsman	E	6	100-200	0	0	100,000	0	Damaged 10 farms in area north of Jamestown.
OHIO										
1. Apr. 13	12:15p.m.	Franklin	NE	2	50	0	0	300,000	0	Unroofed buildings in southern and southeastern Columbus.
2. Apr. 13	1 p.m.	Morgan, Muskingum and Perry	NE	(1)	1,760	0	0	(3)	0	Damaged church, unroofed buildings, blew trees over on homes, and leveled small buildings.
3. Apr. 13	2:10 p.m.	Tuscarawas	NE	1/4	25	0	4	300,000	0	Winds of 82 m.p.h. disassembled Dover Appliance Company plant and Twin Cities Concrete Company plant.
4. May 24	4 p.m.	Cuyahoga	NE	3/4	200	0	0	30,000	0	Dark funnel cloud hit business section in Bedford, damaged roofs, broke windows, and demolished garages.
OKLAHOMA										
1. Apr. 8	4:45-6 p.m.	Beckham and Dewey	NE	45	100	0	0	200	0	Three miles southwest of Sayre, Beckham County to near Leedy, Dewey County. Not continuous path.
2. Apr. 8	10:37-11 p.m.	Woods	(1)	(1)	(1)	0	0	0	0	Did not strike ground. Near Alva.

See reference notes at end of table.



# TORNADO DATA

Table 11-Continued

YEAR 1952

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
OKLAHOMA (Cont'd)										
3. Apr. 20	3:30-7:15 p.m.	Harmon, Beckham, Roger Mills and Dewey	NE	99	4-20	0	0	16,000	0	Considered to be a single tornado coming to ground at times, traveling at rate of 25 m.p.h. First struck 2 miles south of Vinson, Harmon County, then Erick and Sayre, Beckham County, to near Vici, Dewey County
4. Apr. 20	4-4:30p.m.	Jackson	NE	1 1/2	440	0	0	100	0	In one cloud there were 3 funnels; one struck the ground, destroying a shed and fence east of Duke.
5. Apr. 21	3:25 p.m.	Jackson	(1)	(1)	(1)	0	0	0	0	2 funnels in a single cloud 3 miles northwest of Altus. Did not reach the ground.
6. Apr. 21	3:25 p.m.	Jackson	(1)	(1)	(1)	0	0	0	0	
7. Apr. 21	4:05-12 p.m.	Kay	NW	1/4	50	0	0	0	0	Radar reports of direction of thunderstorm movement confirmed reports of this unusual direction. Moved across open fields northwest of blackwell.
8. Apr. 21	4:56 p.m.	Garfield	(1)	(1)	(1)	0	0	0	0	Northeast of Enid; funnel cloud observed by several. Did not touch ground. Accompanied by heavy rain.
9. Apr. 30	3:45-4:15 p.m.	Woods	E	12	200	0	0	6,000	0	Buildings on 3 farms damaged in vicinity of Freedom. 1 tornado which dipped to ground 7 times.
10. May 17	4:15 a.m.	Pushmataha	E	(1)	(1)	0	0	0	0	Did not touch ground. Observed near Antlers.
11. May 22	11:30p.m.	Grady	(1)	(4)	(5)	0	0	500	0	Barn destroyed in southern part of County.
12. May 23	4 a.m.	Payne	(1)	(4)	(5)	0	0	2,000	0	Destroyed farmstead 4 miles northwest of Cushing.
13. May 23	4:30 a.m.	Kiowa	NE	15	100	0	0	2,000	0	2 barns destroyed east of Snyder.
14. May 23	4:45-5 a.m.	Comanche	E	1/3	150	0	1	150,000	0	Damage to builds in Lawton.
15. May 23	5-5:10 a.m.	Comanche	(1)	(4)	200	0	0	250,000	0	Damage to warehouse buildings. Almost concurrent with preceding tornado and only a few miles northwest at Fort Sill.
16. May 23	4:45 p.m.	Beckham	(1)	(1)	(1)	0	0	0	0	Did not reach ground. Observed between Sayre and Elk City.
17. June 1	12:49 a.m.	Roger Mills	NE	(4)	(5)	0	0	4,500	0	Fast moving funnel. Farmstead damaged considerably at Meridian community.
18. June 1	6:30 a.m.	Roger Mills	(1)	(1)	(1)	0	0	0	0	Funnel observed west of Sweetwater. Did not reach ground.
19. June 1	(1)	Grant	(1)	(1)	(1)	0	0	0	0	Funnel observed. Did not reach ground.
20. June 4	3:30 p.m.	Blaine	NE	(4)	(5)	0	0	0	2,000	Observed 5 miles south of Okeene. Damage to wheat fields.
21. June 15	12:50 a.m.	Roger Mills	(1)	(4)	(5)	0	0	1,000	0	In vicinity of Cheyenne destroyed telephone lines, fences, and bushes, and upended tombstones.
22. June 21	3:50-4:30 p.m.	Major	SE	1/4	880	0	0	(2)	0	In vicinity of Fairview.
23. June 29	4:30-5p.m.	Tillman	NW	(1)	(5)	0	1	1,000	0	Unroofed 2 buildings, damaged farm equipment and buildings in Frederick.
24. July 1	2 p.m.	Pontotoc	NW	(1)	(1)	0	0	0	0	Observed in Latta community (2 miles southwest of Ada). Did not reach ground.
25. July 7	1:30 p.m.	Canadian	NE then E	3	50	0	0	0	0	Observed near Mustang. Moved through grassland.
26. July 13	1 p.m.	Kingfisher	SE	1	10	0	0	500	0	Struck farmstead, damaged trees and shed southwest of Crescent.
27. July 13	Afternoon	Rogers	(1)	(4)	(5)	0	0	2,000	0	2 barns demolished 3 miles west of Claremore.
28. July 16	5:30 p.m.	Beaver	(1)	(4)	(5)	0	0	10,000	0	Elevator tower in Turpin demolished.
29. Aug. 15	4:30 p.m.	Logan	NE	5	75	0	0	40,000	0	Damaged 18 barns and other farm buildings, 11 boats and 1 automobile in vicinity of Seward.
OREGON										
(None reported)										
PENNSYLVANIA										
1. Jan. 17	8-9 p.m.	Crawford	NE	1/2	400	0	0	100,000	0	Tornado struck both sides of Conneaut Lake. Several garages blown down, cars damaged, 2 cottages damaged. Lumber yard and buildings scattered. School demolished, church damaged.
2. Apr. 5	1-1:30 p.m.	York	ENE	(1)	(1)	0	4	1,500,000	0	Incipient tornado activity with general storm area from west of York to Wrightsville. Factories, greenhouses, barns, homes, utility lines, trees severely damaged.
3. Apr. 5	1:15-1:45 p.m.	Dauphin	ENE	(1)	(1)	0	4	(3)	0	Hit-skip tornado effect from Steelton to Lawnton. Roof, wire, and tree damage.
4. Apr. 5	1:45-2:45 p.m.	Lancaster	ENE	(1)	(1)	0	6	75,000	0	Tornado effect crumpled 420-foot tower near Lancaster, damaged barns, homes, garages, trees, and wires. Power service out up to 4 hours.

See reference notes at end of table.



# TORNADO DATA

Table 11-Continued

YEAR 1952

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
PENNSYLVANIA (Cont'd)										
5. Apr. 5	4:15-4:45 p.m.	Monroe	ENE	(1)	(1)	0	0	(3)	0	Tornado emptied reservoir, damaged barns, roofs, garages in Stroudsburg area.
6. July 19	6:30-7a.m.	Erie	E	10	25	0	0	(3)	C	Tornado effects from Beaver Dam to Corry; ripped off church belfry, twisted church on its foundation, damaged trees and factory. Hit-skip path.
7. July 23	1:30 p.m.	Mifflin	E	(1)	(1)	0	Sev-eral	(3)	C	Tornado ripped off half of building roof, crumpled chimney, damaged warehouse walls.
8. Aug. 16	8-8:30pm.	Dauphin	ENE	1/2	30	0	0	1,200	0	Barn unroofed, small buildings damaged at Gratz.
RHODE ISLAND (None reported)										
SOUTH CAROLINA										
1. Mar. 3-4	Night	Orangeburg	(1)	(1)	(1)	0	0	10,000	0	Evidence of tornadic action, 1 building destroyed and 7 damaged.
2. May 10	2-5 p.m.	Southern parts Greenville and Spartanburg Counties also Chester and Union Counties	E	90	(1)	2	4	25,000	200,000	Most of crop damage was to peaches in Spartanburg County. 1 house and 2 smaller structures destroyed in Woodruff, Spartanburg County. Deaths occurred near Spartanburg.
3. May 11	2-4 a.m.	Barnwell and Orangeburg	NE	45	400	0	0	3,000	3,000	Dipped several times between Blackville and Cameron. Accompanied by hail.
4. June 12	7-8 p.m.	Barnwell	(1)	(1)	(1)	0	0	500,000	0	100 trailers destroyed. Occurred near Williston.
5. July 27	11:50 a.m.	Charleston	(1)	(1)	(1)	0	0	0	0	Funnel cloud observed at Charleston Airport; east-southeast of airport and about 8 to 10 miles away. No evidence found of its reaching ground in sparsely settled area between Cooper and Wando Rivers.
SOUTH DAKOTA										
1. June 23	6:45-7:45 p.m.	Sanborn	S	2	40	0	0	(2)	(2)	Fences, haystacks, and corn fields damaged at Forestburg.
2. June 24	9 a.m.	Haakon	(1)	(4)	(5)	0	0	0	0	Touched ground in open country 15 miles northeast of Philip.
3. June 27	11 p.m.	Faulk	(1)	(4)	(5)	0	0	50,000	0	Barns and machinery damaged in area 3 miles east of Onaka.
4. June 28	7-7:20 p.m.	Charles Mix	(1)	1	100	0	0	(2)	0	Haystack and 100-yard fence destroyed at Academy.
5. June 28	10:05-10:20pm.	Hutchinson	(1)	(4)	(5)	0	0	8,000	0	Farm buildings damaged at Menno.
TENNESSEE										
1. Feb. 13	5 p.m.	Benton	(1)	1/4	300	0	0	20,000	0	9 homes and 6 farm buildings damaged.
2. Feb. 13	7:45 p.m.	Davidson	(1)	1/4	200	0	0	15,000	0	Between Newson Station and Linton 1 home wrecked and 1 home damaged.
3. Feb. 13	9 p.m.	Lincoln	E	1/2	300	0	2	300,000	0	Formed over Giles County; struck Howell, then Mulberry, destroying 43 homes and other buildings, damaging 93 others.
4. Feb. 13	10 p.m.	Moore	E	2	1,000	0	9	125,000	0	Struck along Highway 50, destroying 23 homes and other buildings, damaging 27 others.
5. Feb. 13	10 p.m.	Franklin	E	1/2	300	3	35	310,000	0	At Beech Hill, 4 buildings destroyed. Scattered buildings demolished at Marble Plains. Several homes, 2 barns leveled at Roark Cove. At Dechard 100 homes destroyed and 50 damaged. 85 other buildings wrecked or damaged. 5 freight cars scattered along tracks.
6. Feb. 13	11p.m.	Grundy	E	1/2	400	0	2	200,000	0	At Monteagle and Tracy City 150 homes and other buildings destroyed.
7. Feb. 29	4:30 p.m.	Lincoln	NE	2	300	2	150	3,000,000	0	Fayetteville struck; 244 homes and buildings demolished and 360 others damaged.
8. Feb. 29	7:30 p.m.	Warren	NE	1	400	1	0	10,000	0	Struck Viola, damaging several farm buildings.
9. Feb. 29	4 p.m.	Marshall	(1)	1/8	100	1	0	10,000	0	Struck Belfast, destroying a few buildings.
10. Feb. 29	6:30 p.m.	McMinn	E	15	1,760	0	0	95,000	5,000	Cut path of destruction through Eastannelles Valley and community, died out near Etowah Highway. Many buildings destroyed; several cattle and horses killed.

See reference notes at end of table.



# TORNADO DATA

Table 11-Continued

YEAR 1952

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
TENNESSEE (Cont'd)										
11. Mar. 21	5:30 p.m.	Dyer	NE	15	1,000	16	50	1,110,000	0	3 tornadoes hit Dyersburg area. New airport administration building, hangar, and several airplanes destroyed. Unionville first and hardest hit. 10 other communities suffered damage. About 100 homes demolished, 150 or more damaged.
12. Mar. 21	5:30 p.m.	Dyer	NE							
13. Mar. 21	5:30 p.m.	Dyer	NE							
14. Mar. 21	10:45 p.m.	Gibson	NE	1/2	400	3	5	515,000	0	Extensive damage to Milan arsenal; 30 buildings destroyed and 2 damaged.
15. Mar. 21	10:50 p.m.	Carroll	NE	4	175	2	27	647,000	0	Entire business district of Bruceton demolished. Damage at Medina, Lavinia, Bruceton heavy.
16. Mar. 21	11:55 p.m.	Humphreys	NE	1/3	500	0	0	50,000	0	Struck Squeezebottom community.
*17. Mar. 21	10 p.m.	Fayette	NE	20	420	8	42	100,000	5,500	Bethlehem community 4 miles southwest of Moscow first hit. Path crossed Moseon and lifted 1 mile north-northeast. 16 homes destroyed, 11 others damaged. Continuation of Marshall County, Miss., tornado.
18. Mar. 21	11 p.m.	Hardeman	NE	1/8	150	4	5	225,000	0	Struck Bolivar, destroying 14 homes and damaging 17 others.
19. Mar. 21	11:15 p.m.	Chester	NE	50	1,275	21	100	2,500,000	0	Henderson hit where destruction heavy. Practically every building in town of 2,500 damaged or destroyed. 120 homes destroyed, 360 damaged.
20. Mar. 21	11:30p.m.	Henderson	NE	1/8	175	10	43	555,000	0	Chesterfield hard hit; 22 homes destroyed, 67 damaged.
21. Mar. 22	12:20a.m.	Decatur	NE	1/2	40	3	10	35,000	0	7 homes destroyed, 2 others damaged in rural sections.
22. Mar. 22	11:15a.m.	Smith	(1)	1/4	100	0	1	24,000	0	Struck Carthage, damaging 2 or 3 business houses on main street.
23. June 30	6:05 p.m.	Davidson	NE	(1)	(1)	0	0	0	0	Tornado cloud observed by 1 person about 8 miles south of Nashville.
TEXAS										
1. Feb. 1	Afternoon	Orange	(1)	1	880	0	0	10,000	0	Victory Gardens community southwest of Orange; 1 home destroyed, others damaged.
2. Mar. 2	10:p.m.	Dallas	(1)	(1)	(1)	0	0	3,000	0	At Sachse, 5 miles northeast of Garland.
3. Mar. 17	7:30 p.m.	Wichita	(1)	3	30	0	0	15,000	0	5 1/2 miles south-southwest of Wichita Falls Airport. Small buildings destroyed.
4. Mar. 17	8 p.m.	Palo Pinto	(1)	1/2	30	0	0	800	0	Struck Graford. Lights damaged at Possum Kingdom Dam.
5. Apr. 3	6 p.m.	Grayson	NE	6	200	0	1	9,500	500	7 homes damaged at Pottsboro.
6. Apr. 18	2:15 p.m.	Henderson	(1)	(1)	200	0	0	2,000	0	Damaged 7 farm homes near Athens.
7. Apr. 21	12:15 p.m.	McLennan	(1)	(1)	200	0	0	32,000	0	4 miles northwest of McGregor; farm buildings destroyed.
8. Apr. 30	6:30 p.m.	Tom Green	(1)	1/2	100	0	6	275,000	0	Buildings destroyed and many plate-glass windows broken in San Angelo.
9. May 23	11:40 a.m.	Henderson	SE	(4)	30	0	0	1,000	0	Building damaged at Brownsboro.
10. May 23	2:30 p.m.	Tom Green	NE	6	50	0	1	5,000	0	1 home destroyed at San Angelo.
11. June 5	12:30 p.m.	Grayson	(1)	(4)	(5)	0	1	650	0	Damage to farm buildings at Sherman.
12. July 31	4 p.m.	Harris	(1)	(1)	(1)	0	0	0	0	2 small funnel-shaped clouds south-southeast of Houston; did not reach ground.
13. July 31	4 p.m.	Harris	(1)	(1)	(1)	0	0	0	0	
14. August 12	4:15 p.m.	Young	NW	(4)	50	0	0	12,000	0	Apartment, office, hangar, and 3 planes damaged at Graham.
15. Dec. 3	6:15 p.m.	Trinity and Walker	NE	15	100	0	4	15,500	0	Injured were in Kittrel Community. Homes destroyed and damaged.
UTAH (None reported)										
VERMONT (None reported)										
VIRGINIA										
1. Apr. 5	10:15 a.m.	Augusta	NE	1	150	0	2	7,000	0	3 barns and 1 brooder house severely damaged near Harrison. 2 men seriously injured during destruction of 1 barn.
2. Apr. 5	11 a.m.	Rockingham	NE	5	(1)	0	0	60,000	0	Struck sparsely settled area from McGaheysville to Elkton. Many thousands of turkeys killed; several buildings and barns destroyed and outbuildings whirled from foundations; many trees uprooted.
3. Aug. 31	10:30 p.m.	Fairfax	(1)	2	100	0	0	35,000	0	1 house virtually demolished, 2 others extensively damaged. Several other houses damaged and smaller buildings demolished or damaged in Franconia. Trees and wires blown down.

See reference notes at end of table.



# TORNADO DATA

Table 11--Continued

YEAR 1952

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
WASHINGTON										
(None reported)										
WEST VIRGINIA										
(None reported)										
WISCONSIN										
1. June 23	9:15 p.m.	Polk	NE	15	100	2	6	250,000	0	No funnel-shaped cloud seen, but probably a tornado. Occurred at Centuria.
WYOMING										
1. May 8	Noon	Niobara	NE	2	100	0	0	(2)	0	Near Hat Creek. Hit in open range country. Only damage was to fences.
2. June 27	Afternoon	Goshen	NE	(1)	(1)	0	0	■	0	Funnel sighted near Guernsey, but failed to reach the ground.
ALASKA										
(None reported)										
HAWAII										
(None reported)										
WEST INDIES										
(None reported)										

- \* Denotes State-boundary crossing tornadoes.
- C Damage to crops.
- 1 Datum not obtained.
- 2 Amount of damage described as small; no definite monetary estimate.
- 3 Losses occurred; amount not reported.
- 4 Short
- 5 Narrow
- 6 Yards instead of miles.



# TORNADO SUMMARY

Table 12

YEAR 1952

State	January	February	March	April	May	June	July	August	September	October	November	December	Total
ALABAMA													
Number	1	4	2	1	3								11
Days	1	2	2	1	1								7
Deaths	0	2	4	0	0								6
Injuries	0	58	56	2	0								116
Damage	\$5,000	\$372,500	\$100,000	\$80,000	\$200,000								\$757,500
ARIZONA													
Number											1		1
Days											1		1
Deaths											0		0
Injuries											0		0
Damage											(3)		(3)
ARKANSAS													
Number	2	1	4	2		2	3				1		15
Days	1	1	2	1		2	1				1		9
Deaths	0	0	111	0		0	0				0		111
Injuries	0	5	772	0		0	0				2		779
Damage	2 10,000	(1) 6,746,498		1,105		(3) 2/\$12,150					\$26,000		2/ 6,795,753
CALIFORNIA													
Number											1	2	3
Days											1	1	2
Deaths											0	0	0
Injuries											0	0	0
Damage											100,000	(1) 2/100,000	
COLORADO													
Number					3	1							4
Days					3	1							4
Deaths					0	0							0
Injuries					5	0							5
Damage					2/ 21,800	\$50,750							2/ 72,550
CONNECTICUT													
(None)													
DELAWARE													
(None)													
DISTRICT OF COLUMBIA													
(None)													
FLORIDA													
Number	2	3		1	2	2		1					11
Days	1	2		1	2	2		1					9
Deaths	0	0		0	0	0		0					0
Injuries	3	4		1	1	0		0					9
Damage	19,000	11,600		6,000	2/ 3,500	(1)		\$2,000					2/ 42,100
GEORGIA													
Number	6	3	2		1								12
Days	2	1	2		1								6
Deaths	0	0	0		0								0
Injuries	12	8	4		10								34
Damage	234,300	2/ 149,300	268,550		2/ 750,000								2/ 1,402,150
IDAHO													
(None)													
ILLINOIS													
Number			2		1		1						4
Days			1		1		1						3
Deaths			0		0		0						0
Injuries			1		0		0						1
Damage			75,100		11,000		1,500						87,600
INDIANA													
Number					1						* 1		2
Days					1						1		2
Deaths					0						0		0
Injuries					0						0		0
Damage					55,000						\$300,000		355,000
IOWA													
Number					2	2	4				1		9
Days					1	2	1				1		5
Deaths					0	1	0				0		1
Injuries					0	2/ 6	0				0		6
Damage					2/ 3,250	1,200,000	2/ 7,000				(3)		2/ 1,210,250
KANSAS													
Number				8	3	6	5	3			1		26
Days				4	2	6	1	2			2		17
Deaths				0	0	0	0	0			0		0
Injuries				0	13	0	0	0			0		13
Damage				500	255,400	61,300	3,000	2/ 10,000			(1)		2/ 330,200
KENTUCKY													
Number			1									* 1	2
Days			1									1	2
Deaths			0									0	0
Injuries			18									3	21
Damage			2/ 250,000									250,000	2/ 500,000
LOUISIANA													
Number		2	1	5	1								9
Days		2	1	3	1								7
Deaths		0	0	4	0								4
Injuries		5	0	46	0								51
Damage		40,000	135,000	1,135,000	2/ 5,000								2/ 1,315,000
MAINE													
(None)													
MARYLAND													
Number				3				1					4
Days				1				1					2
Deaths				0				0					0
Injuries				1				0					1
Damage				(1)				20,000					2/ 20,000
MASSACHUSETTS													
(None)													
MICHIGAN													
Number								1	4				5
Days								1	1				2
Deaths								0	0				0
Injuries								0	0				0
Damage								0	0				0

See reference notes at end of table.



# TORNADO SUMMARY

Table 12-Continued

YEAR 1952

State	January	February	March	April	May	June	July	August	September	October	November	December	Total
MINNESOTA													
Number						6	5	1					12
Days						2	3	1					6
Deaths						0	0	0					0
Injuries						2/ 25	2/ 4	3					32
Damage						\$1,575,000	\$370,000	2/ \$25,000					\$1,970,000
MISSISSIPPI													
Number		3	*2				1	1					7
Days		1	1				1	1					4
Deaths		0	9				0	0					9
Injuries		3	25				0	0					28
Damage		\$52,000	\$301,500				17,000	15,000					385,500
MISSOURI													
Number		1	3		3		1	1			1		10
Days		1	2		2		1	1			1		8
Deaths		0	17		0		0	1			0		18
Injuries		0	2/ 101		0		0	13			2/ 2		116
Damage		3,000	1,490,000		2/ \$1,150		6,000	1,500,000			\$1,300,000		4,300,150
MONTANA													
Number							*2						2
Days							1						1
Deaths							1						1
Injuries							2						2
Damage							2/ 426,100						2/ 426,100
NEBRASKA													
Number				1	3	2	1	2					9
Days				1	3	2	1	1					8
Deaths				0	0	0	0	0					0
Injuries				0	1	0	0	20					21
Damage				(3)	(1)	2/ 7,000	0	2/ 88,500					2/ 95,500
NEVADA													
(None)													
NEW HAMPSHIRE													
(None)													
NEW JERSEY													
Number				1				1					2
Days				1				1					2
Deaths				0				0					0
Injuries				0				0					0
Damage				\$5,000				25,000					30,000
NEW MEXICO													
(None)													
NEW YORK													
Number				1	1								2
Days				1	1								2
Deaths				0	0			0					0
Injuries				0	0			0					0
Damage					10,000								10,000
NORTH CAROLINA													
Number				1	2		1	1	1		1		7
Days				1	2		1	1	1		1		7
Deaths				0	0		0	0	0		0		0
Injuries				0	8		0	0	0		1		9
Damage				15,000	(1)		60,000	5,000	\$20,000		200,000		2/ 300,000
NORTH DAKOTA													
Number						1	*6						10
Days						3	5						8
Deaths						0	2						2
Injuries						1	5						6
Damage						55,000	450,100						505,100
OHIO													
Number				3	1								4
Days				1	1								2
Deaths				0	0								0
Injuries				0	0								0
Damage				2/ 600,000	30,000								2/ 630,000
OKLAHOMA													
Number				9	7	7	5	1					29
Days				4	3	5	4	1					17
Deaths				0	0	0	0	0					0
Injuries				0	1	1	0	0					2
Damage				22,300	404,500	2/ 8,500	12,500	40,000					2/ 487,800
OREGON													
(None)													
PENNSYLVANIA													
Number	1			4			2	1					8
Days	1			1			2	1					5
Deaths	0			0			0	0					0
Injuries	0			2/ 14			(4)	0					2/ 14
Damage	\$100,000			1,575,000			(1)	1,200					1,676,200
RHODE ISLAND													
(None)													
SOUTH CAROLINA													
Number				1	2	1	1						5
Days				2	2	1	1						6
Deaths				0	2	0	0						2
Injuries				0	4	0	0						4
Damage				10,000	231,000	500,000	0						741,000
SOUTH DAKOTA													
Number						5							5
Days						4							4
Deaths						0							0
Injuries						0							0
Damage						2/ 58,000							2/ 58,000
TENNESSEE													
Number		10	*12			1							23
Days		2	2			1							5
Deaths		7	67			0							74
Injuries		198	283			0							481
Damage		4,090,000	5,766,500			0							9,856,500

See reference notes at end of table.



# TORNADO SUMMARY

Table 12-Continued

YEAR 1952

State	January	February	March	April	May	June	July	August	September	October	November	December	Total
TEXAS													
Number		1	3	4	2	1	2	1				1	15
Days		1	2	4	1	1	1	1				1	12
Deaths		0	0	0	0	0	0	0				0	0
Injuries		0	0	7	1	1	0	0				4	13
Damage		\$10,000	\$18,800	\$319,000	\$6,000	\$650	\$0	\$12,000				\$15,500	\$381,950
UTAH													
(None)													
VERMONT													
(None)													
VIRGINIA													
Number				2				1					3
Days				1				1					2
Deaths				0				0					0
Injuries				2				0					2
Damage				67,000				35,000					102,000
WASHINGTON													
(None)													
WEST VIRGINIA													
(None)													
WISCONSIN													
Number						1							1
Days						1							1
Deaths						2							2
Injuries						6							6
Damage						250,000							250,000
WYOMING													
Number					1	1							2
Days					1	1							2
Deaths					0	0							0
Injuries					0	0							0
Damage					(3)	0							(3)
ALASKA													
(None)													
HAWAII													
(None)													
WEST INDIES													
(None)													
TOTALS													
Number	12	28	33	45	39	42	40	17	5		7	5	273
Days	6	13	32	25	29	34	25	15	2		8	4	270
Deaths	**4	**6	**9	**12	**17	**20	**15	**11	**2		**5	**3	179
Injuries	0	9	208	4	2	3	3	1	0		0	0	104
Damage	2/ 15 2/ 281 2/ 1,260 2/ 77 2/ 44 2/ 40 2/ 2/ 11 2/ 36	2/ 15 2/ 281 2/ 1,260 2/ 77 2/ 44 2/ 40 2/ 2/ 11 2/ 36	2/ 15 2/ 281 2/ 1,260 2/ 77 2/ 44 2/ 40 2/ 2/ 11 2/ 36	2/ 15 2/ 281 2/ 1,260 2/ 77 2/ 44 2/ 40 2/ 2/ 11 2/ 36	2/ 15 2/ 281 2/ 1,260 2/ 77 2/ 44 2/ 40 2/ 2/ 11 2/ 36	2/ 15 2/ 281 2/ 1,260 2/ 77 2/ 44 2/ 40 2/ 2/ 11 2/ 36	2/ 15 2/ 281 2/ 1,260 2/ 77 2/ 44 2/ 40 2/ 2/ 11 2/ 36	2/ 15 2/ 281 2/ 1,260 2/ 77 2/ 44 2/ 40 2/ 2/ 11 2/ 36	2/ 15 2/ 281 2/ 1,260 2/ 77 2/ 44 2/ 40 2/ 2/ 11 2/ 36	2/ 15 2/ 281 2/ 1,260 2/ 77 2/ 44 2/ 40 2/ 2/ 11 2/ 36	2/ 15 2/ 281 2/ 1,260 2/ 77 2/ 44 2/ 40 2/ 2/ 11 2/ 36	2/ 15 2/ 281 2/ 1,260 2/ 77 2/ 44 2/ 40 2/ 2/ 11 2/ 36	2/ 15 2/ 281 2/ 1,260 2/ 77 2/ 44 2/ 40 2/ 2/ 11 2/ 36
	\$368,300	\$4,728,400	\$15,161,948	\$3,825,905	\$1,987,600	\$3,766,200	\$1,365,350	\$1,778,700	\$20,000		\$1,626,000	\$565,500	\$35,193,903

\* Corrected for boundary-crossing tornadoes.

\*\* Tornado days for country as a whole.

1. Losses occurred; amount not reported.

2. Additional losses occurred.

3. Amount of damage described as small; no definite monetary estimate.

4. Several injuries.



## NUMBER OF TORNADOES, TORNADO DAYS, AND RESULTING LOSSES BY YEARS; 1916-1952

Table 13.

Year	Number reported	Number tornado days	Total loss of life	Most deaths in a single tornado	Total reported property losses	Number of tornadoes causing losses of	
						\$100,000	\$1,000,000
1916	90	36	150	30	\$2,264,500	6	1
1917	121	38	509	101	15,007,700	22	5
1918	81	45	135	36	7,431,150	19	1
1919	65	35	206	59	6,861,500	9	2
1920	87	49	498	87	15,007,500	24	7
1921	106	55	202	61	5,456,300	13	1
1922	108	65	135	16	6,880,000	20	0
1923	102	59	109	23	2,968,725	8	0
1924	130	58	376	85	26,072,350	25	6
1925	119	64	794	689	24,039,900	29	1
1926	111	56	144	23	4,323,950	16	0
1927	164	63	540	92	43,455,650	28	7
1928	203	79	92	14	13,235,600	25	4
1929	197	73	274	40	10,112,400	30	1
1930	192	72	179	41	12,289,100	28	3
1931	94	57	36	6	3,215,900	7	1
1932	152	67	394	37	8,888,525	11	1
1933	260	96	362	34	16,190,640	31	5
1934	147	77	47	6	4,424,950	9	0
1935	182	77	70	11	4,661,430	15	0
1936	159	73	552	216	26,228,550	17	6
1937	148	76	29	5	3,155,875	11	0
1938	220	78	183	32	8,793,457	18	3
1939	155	75	87	27	5,891,930	10	2
1940	128	65	65	18	6,015,320	9	1
1941	118	57	53	25	4,492,650	15	0
1942	170	68	384	65	15,268,950	32	3
1943	155	63	58	5	12,198,400	25	4
1944	173	67	275	100	21,594,150	34	7
1945	126	68	210	69	22,069,800	25	8
1946	109	66	78	15	12,267,015	31	3
1947	171	80	313	169	23,994,680	42	5
1948	190	74	140	33	40,699,650	53	6
1949	262	84	212	58	27,367,380	45	7
1950	209	91	70	18	13,602,340	31	1
1951	300	119	34	6	29,484,275	27	7
1952	270	104	230	57	35,193,903	48	10
Sum	5,774	2,529	8,225	---	\$541,106,095	848	119
Mean	156.1	68.4	222.3	---	14,624,489	---	---



# HAILSTORM LOSSES

Table 14 YEAR 1952

Section	January		February		March		April		May		June		July	
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops
Alabama							\$200			\$10,000	1/190,000	\$10,500	1/18,000	\$13,900
Arizona							\$402,000						1/3/5,500	(4)
Arkansas	(4)	(4)			\$62,200	3/50,000			5/357,000	3/117,700				
California									1,000	150,000	50,750	1,800,000	500	5,000
Colorado														
Connecticut														
Delaware														
Dist. of Columbia														
Florida								(2)		(2)		(4)		(4)
Georgia									25,100	101,000		55,000		
Idaho										(2)		(2)		
Illinois									10,000	15,000	100,000	50,000	1,000	1,000
Indiana									(4)	8/518,267	3,000	10,000	3/1,000	8/1,518,268
Iowa													2,500	24,700
Kansas							2,300	2,400	35,000	3,524,000	4,000	1,165,000	5/62,000	5/39,000
Kentucky							1,500	1,000			3,000			
Louisiana									5/5,000	(4)				
Maine														
Maryland							5,000	(2)				3/500,000		3/13,000
Massachusetts										(4)		1,100		59,320
Michigan										(2)			3/46,000	1/455,000
Minnesota			6/23,000	6/20,000	1/102,000						3/45,000	1/153,000		
Mississippi									5,000	30,000				
Missouri													3/	1,435,000
Montana									(2)	3/700,000	3/140,000	3/134,000	50,000	100,000
Nebraska												3/733,500		
Nevada														
New Hampshire														
New Jersey														
New Mexico							5/7500			15,000	(4)	(4)	3/1,000	3/100,000
New York											(2)	(2)	(2)	(2)
North Carolina											(4)	(4)		
North Dakota							110,000		70,000	421,200	19,000	1,042,000	8,000	2,598,000
Ohio											10,000	550,000	100,000	4,000,000
Oklahoma					(2)	(2)	1,525,000	214,300	30,450	3,476,000	11,650	453,500		
Oregon														
Pennsylvania							(4)				(4)	3/500	(4)	3/1,000
Rhode Island								5/1,000,000					1,000	15,000
South Carolina						9,000					3/3,010,000	3/7,500		(2)
South Dakota											2,000	550,000		
Tennessee			1,000						3/505,000	(4)	50,000	398,500		
Texas			75,000								34,800			
Utah														
Vermont														
Virginia														
Washington														
West Virginia											2,000	(4)	2,000	398,000
Wisconsin									1/3/6,000	(4)	(4)	(4)	(2)	25,000
Wyoming											(2)	13,000		(2)
Alaska											(2)	(2)		
Hawaii														
West Indies														
Total	(4)	(4)	6/99,000	6/20,000	3/7/173,200	3/50,000	2,149,500	1,619,700	629,350	9,478,667	3,588,400	10,228,600	298,500	10,801,188

# HAILSTORM LOSSES

Table 14-Continued YEAR 1952

Section	August		September		October		November		December		Crop season April-Sept.		Total			
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property and crops	
Alabama		\$2,000									\$200	\$12,000	\$200	\$12,000	1/3 \$12,200	
Arizona		500	\$7,500	\$150,500			(2)				1/2 15,500	577,400	1/3 215,500	3 577,400	1/3 792,900	
Arkansas									3/ \$100,000	(2)	1/3 362,500	117,700	1/3 524,700	3 167,700	3/ 962,400	
California											0	0	0	0	0	
Colorado	\$35,220	75,000			\$100	(4)					87,470	2,030,000	87,470	2,030,000	2,117,470	
Connecticut		(2)									(4)	100	(4)	3	100	
Delaware											0	0	0	0	0	
Dist. of Columbia											0	0	0	0	0	
Florida											(4)	(4)	(4)	(4)	(4)	
Georgia		4,750									25,100	160,750	25,100	160,750	185,850	
Idaho		(4)									(4)	(4)	(4)	(4)	(4)	
Illinois			10,000	490,000							121,000	556,000	121,000	556,000	677,000	
Indiana		8/									3,000	10,000	3,000	10,000	3 13,000	
Iowa	3/200,000	1,818,268									3 201,000	8/3,854,803	3 201,000	8 3,854,803	4,055,803	
Kansas	225,500	298,000					(4)				269,300	5,014,100	3 269,300	5,014,100	3 5,283,400	
Kentucky	10,000	1,100,000	12,500	37,500							2/89,000	5/1,177,500	5/89,000	5/1,177,500	5/1,266,500	
Louisiana											5/5,000	(4)	3/5,000	(4)	3/5,000	
Maine											0	0	0	0	0	
Maryland	2,500	5,000									7,500	3/5,000	7,500	3/5,000	3/12,500	
Massachusetts											3/513,000	3/513,000	3/513,000	3/513,000		
Michigan		50,150		8,500		\$375					3/119,070	3/119,070	3/119,445	3/119,445		
Minnesota	20,000	1/325,000									3/111,000	1/933,000	3/111,000	1/933,000	1/1,044,000	
Mississippi			8,000	510,000							8,000	5/10,000	6/31,000	5/6/30,000	5/6/61,000	
Missouri	(4)	3/157,700	3/50,000	3/156,000							5,000	30,000	7/107,000	30,000	137,000	
Montana											3/50,000	3/1,882,700	3/50,000	3/1,882,700	3/1,932,700	
Nebraska	160,000	500,000									3/350,000	3/5,033,500	3/350,000	3/5,033,500	3/5,383,500	
Nevada											0	0	0	0	0	
New Hampshire		(2)									(2)	(2)	(2)	(2)	(2)	
New Jersey	(4)	(4)									(4)	(4)	(4)	(4)	(4)	
New Mexico	1/27,850	1/20,000									1/3/5729,350	1/3/135,000	1/3/5729,350	1/3/135,000	1/3/164,350	
New York											(4)	(4)	(4)	(4)	(4)	
North Carolina	7,000	706,900									214,000	4,768,100	214,000	4,768,100	4,982,100	
North Dakota	30,000	1,500,000	5,000	350,000							145,000	6,400,000	6,400,000	6,400,000	6,545,000	
Ohio											0	0	0	0	0	
Oklahoma	1,600,000	3,000									3,167,100	4,146,800	3/3,167,100	3/4,146,800	3/7,313,900	
Oregon											0	0	0	0	0	
Pennsylvania					300	1,000					(4)	3/1,500	3/300	3/2,500	3/2,800	
Rhode Island											0	0	0	0	0	
South Carolina											1,000	5/1,022,500	10,000	5/1,022,500	5/1,032,500	
South Dakota	5,000	100,000									3/3,015,000	3/650,000	3/3,015,000	3/650,000	3/3,665,000	
Tennessee											52,000	53,000	53,000	53,000	53,000	
Texas		10,000									3/539,800	3/408,500	3/614,800	3/408,500	3/1,023,300	
Utah	(2)	(4)									(2)	(4)	(2)	(4)	(4)	
Vermont											3/2,000	3/400,000	3/2,000	3/400,000	3/402,000	
Virginia											0	0	0	0	0	
Washington											1/3/6,000	(4)	1/3/6,000	(4)	1/3/6,000	
West Virginia											(2)	44,000	(2)	44,000	3/44,000	
Wisconsin		6,000									(2)	3/10,000	(2)	3/10,000	3/10,000	
Wyoming		10,000									0	0	0	0	0	
Alaska											0	0	0	0	0	
Hawaii											0	0	0	0	0	
West Indies											0	0	0	0	0	
Total	2,323,070	6,692,268	3/93,000	1,202,500	\$400	3/1,375	(4)		3	100,000	(2)	9,081,820	40,022,923	9,454,420	40,094,298	49,548,718

1. Considerable damage from attendant heavy rains.
2. Damage reported to be slight.
3. Additional losses occurred; no accurate estimate obtained.
4. Losses occurred, amount not reported.

5. Considerable damage from attendant heavy winds.
6. Considerable damage from attendant tornado.
7. Includes crop damage.
8. Damage estimated.



# HAILSTORM LOSSES FOR PAST YEARS

Table 15

Year	Property (exclusive of crops)	Crops	Total	Year	Property (exclusive of crops)	Crops	Total
1933.....			\$6,773,810	1943.....	\$3,149,220	\$33,854,174	\$37,003,394
1934.....			11,390,405	1944.....	9,060,975	49,987,901	59,048,876
1935.....			9,471,401	1945.....	3,608,170	31,513,464	35,121,634
1936.....	\$1,953,870	\$9,053,168	11,007,038	1946.....	9,783,775	30,382,033	40,165,808
1937.....	1,797,355	10,991,938	12,789,293	1947.....	3,829,320	54,348,839	58,178,159
1938.....	2,634,700	12,170,180	14,804,880	1948.....	12,163,200	56,180,814	68,344,014
1939.....	358,850	3,153,670	3,512,520	1949.....	6,336,400	41,646,610	47,983,010
1940.....	2,245,925	7,162,428	9,408,353	1950.....	21,072,845	28,094,502	49,167,347
1941.....	1,854,571	11,449,108	13,303,679	1951.....	26,416,390	49,015,795	75,432,185
1942.....	1,513,475	16,407,588	17,921,063	1952.....	9,454,420	40,094,298	49,548,718

# WINDSTORM LOSSES

Table 16

(Windstorms other than tornadoes)

YEAR 1952

Section	January		February		March		April		May		June		July	
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops
Alabama			\$25,000		\$246,000		\$2,500		\$164,200		\$2,000		\$300	
Arizona									2,500				1/185,400	\$100
Arkansas					1/2388,000	(3)			1/87,025	1/2,100	2/25,000		(3)	
California					1,000,000				2,000	1,000,000				
Colorado					71,200	\$3,500		\$300,000			10,000	\$250,000		
Connecticut			1/1,000								1/40,000	(3)		
Delaware														
District of Columbia					1,500		5,000		5,800		5,500		500	
Florida	7,700								75,000				1/100,000	
Georgia	17,200	200							49,900	1,000	1,500		38,000	1/9,000
Idaho									(4)		(3)			5,000
Illinois					1,000				46,000	5,000	200,000	100,000	25,000	
Indiana			2,500		10,000				10,000	(3)	30,000	2,000	5,000	(3)
Iowa					(3)		1,000		10,000	(3)	1/86,500		1/1,000	
Kansas					(3)				13,500	10,000	241,000		52,700	
Kentucky					76,000		535,000	260,000	1/67,000	(3)	14,000		1/56,000	
Louisiana	10,000		1/100,000		10,000	(4)	120,000	(3)	10,000	(3)	150,000	(3)	50,000	1,000
Maine			1/601,500		1/2,000		\$500,000		1,000	(3)	1/300,000	(4)	1,005,000	1/12,000
Maryland					(3)				(3)	(3)	1/10,000	(3)	1/90,000	(3)
Massachusetts					15,000				805,000	(3)	805,000	(3)	2/225,000	(3)
Michigan					5,000				2/85,500	30,000	15,000	(3)		
Minnesota									10,000		10,000	2,000	162,600	
Mississippi									99,100		553,000	(4)	8,000	1,300
Missouri									15,000		1/202,345			
Montana									(3)		(3)			
Nebraska					1,800				50,000		300,000	10,000	25,000	5,000
Nevada			(4)		60,000		5/7,500		40,000		5/2,000,000		(3)	(3)
New Hampshire											15,000		30,000	250,000
New Jersey	20,000		20,000						30,000	50,000	8,000	(3)	1,405,000	(3)
New Mexico					20,000						125,700	(3)	274,000	(3)
New York					1,200		725		62,000		8,000		800	
North Carolina											1/68,000	(3)	1/100,000	(3)
North Dakota					1/2,200		1/29,800				(3)	(3)		
Ohio	15,000		2,000				8,000				117,000		1/15,000	
Oklahoma											1/75,000			
Oregon	(3)		1/3,700		1/2,200		1/29,800				2,000			
Pennsylvania			(4)				8,000				5,000			
Rhode Island											1/200,000	(4)		
South Carolina											306,500	12,500	13,000	
South Dakota											5,000			
Tennessee			11,500		25,000				50,000	1/1,800	1/61,000	1/5002	(3)	2/1,000,000
Texas			27,000		33,500		1/4,000	(3)	16,200	(3)	8/862,000	(3)	(3)	(3)
Utah					(3)				10,000					
Vermont					1/1,000		6,000							
Virginia			1/11,000		1,300	300			(3)					
Washington					(3)									
West Virginia	(3)		10,000		1/100,000		100,000		6/70,000	6/100,000		(3)		
Wisconsin														
Wyoming														
Alaska	55,000													
Hawaii														
West Indies														
Total	1/124,900	\$200	\$815,200		2,071,700	1/3,800	1,392,525	1/560,000	\$935,125	1,199,900	6,407,645	1,030,000	6,420,500	1,383,400

See reference notes at end of table.



# WINDSTORM LOSSES

Table 16 -Continued

(Windstorms other than tornadoes)

YEAR 1952

Section	August		September		October		November		December		Crop season April-Sept.		Total	
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops
Alabama	\$4,500	\$5,000									\$173,500	\$5,000	\$444,500	\$5,000
Arizona	1/3,700		\$3,250				2/1,000				1/194,850	100	1/195,850	100
Arkansas							16,000				2/112,025	1/2,100	1/2516,025	1/2,100
California		8,000					2,000				2,000	1,000,000	1,004,000	1,000,000
Colorado	5,000										15,000	558,000	86,200	561,500
Connecticut	75,000	(4)	5/25,000		5/1,800						1/5140,000	(4)	1/5142,800	1/142,800
Delaware											0	0	0	0
Dist. of Columbia	1,000		5,000								22,800		24,300	24,300
Florida		1,000			(4)	(4)					1/175,000	1/182,700	(4)	1/182,700
Georgia	10,100										99,500	2,000	116,700	2,200
Idaho	(3)										(3)	1/9,000	(3)	1/9,000
Illinois			55,000	\$10,000			1,200,000				326,000	120,000	1,526,000	120,000
Indiana	2,000		101,500		5,000		85,000				148,500	2,000	242,000	2,000
Iowa	(3)						(3)				1/97,500	(3)	1/107,500	(3)
Kansas	577,250	7,000	11,500				(3)				896,950	17,000	1,896,950	17,000
Kentucky	18,000		1/139,000	134,500							1/227,000	134,500	1/227,000	134,500
Louisiana											1/602,000	1/260,000	1/688,000	1/260,000
Maine											1/80,000	1/1,000	1/6180,000	1/1,000
Maryland	7,000	14,000	800,000	(3)	5,000	(3)	5,000				1/1,087,700	1/14,000	1/1,101,700	1/14,000
Massachusetts	20,000		5/13,000		5/10,000						1/51,839,000	1/12,000	1/2,452,500	1/12,000
Michigan			1/29,000	(3)	50,000		1/33,500				1/129,000	(3)	1/212,500	(3)
Minnesota	286,800	170,000									2/1,316,800	1/70,000	2/1,386,800	1/70,000
Mississippi	5,000	1,000	1/8,000	1/10,000							1/113,500	1/41,000	1/128,500	1/41,000
Missouri							10,000				182,600	2,000	2/197,600	2,000
Montana											114,100	553,000	114,100	553,000
Nebraska											1/210,345	1/1,300	1/210,345	1/1,300
Nevada											0	0	0	0
New Hampshire	2,000	(1)	5/200,000		2,000				7/25,000		1/202,000	(3)	1/230,800	(3)
New Jersey	20,000	5,000	100,000		20,000		20,000		20,000		535,000	20,000	695,000	20,000
New Mexico											5/7,500	5/7,500	5/7,500	5/7,500
New York			(3)	(3)	(3)	(3)	(3)	(3)			1/52,000,000	(3)	1/52,000,000	(3)
North Carolina											75,000	400,000	95,000	400,000
North Dakota	100,000										5/1,513,000	5/1,513,000	5/1,513,000	5/1,513,000
Ohio	55,000	(3)	(3)	(3)							454,700	(3)	471,700	(3)
Oklahoma	824,400		1,350								897,275		898,475	898,475
Oregon					1/25,300	(3)	(3)	(3)			0	0	0	0
Pennsylvania	(3)	(3)	(3)	(3)			(3)	(3)			1/197,800	(3)	1/229,000	(3)
Rhode Island	5,000		5/2,000								1/515,000	(3)	1/15,000	(3)
South Carolina	712,000	1,500,000									829,000	1,500,000	829,000	1,500,000
South Dakota											1/90,000	1/90,000	1/90,000	1/90,000
Tennessee	(3)	(3)	3,250								1/55,250	(3)	1/91,750	(3)
Texas	15,000		48,000,000		15,000		2,000				48,042,700	1/1,800	48,105,200	1/1,800
Utah			(4)						7/50,000		1/15,000	1/15,000	1/15,000	1/15,000
Vermont									7/125,000		1/200,000	(4)	1/232,000	(4)
Virginia	35,400	4,000							(3)		360,900	16,500	1/378,400	16,500
Washington	200,000	50,000									205,000	50,000	1/222,300	50,000
West Virginia	(3)	(3)									1/61,000	1/71,000	1/171,500	1/71,500
Wisconsin	5,000						100,000				2/3,522,000	2/1,100,000	2/1,100,000	2/1,100,000
Wyoming											1/670,000	1/670,000	1/670,000	1/670,000
Alaska											55,000		55,000	
Hawaii											0	0	0	0
West Indies											0	0	0	0
Total	2,989,150	1,665,000	494,968,25	\$169,500	\$119,100	(3)	1,479,500	(3)	\$220,000		\$12,567,8	1/2,6	\$12,567,8	1/2,6
											67,641,795	\$6,007,800	72,472,195	\$6,011,800

1. Additional losses occurred.
2. Damage from attendant heavy rains.
3. Losses occurred; amount not reported.
4. Damage reported to be slight.

5. Includes crop damage.
6. Damage from attendant heavy snow.
7. Damage from attendant hail.
8. Includes lightning damage.

## WINDSTORM LOSSES PAST YEARS

(Windstorms other than tornadoes)

Table 17

Year	Total loss of life	Total property loss	Year	Total loss of life	Total property loss
1916	65	\$11,712,125	1936	121	\$17,256,265
1917	25	1,400,550	1937	43	6,292,938
1918	79	7,602,200	1938	630	313,435,388
1919	344	28,170,760	1939	60	3,988,141
1920	42	4,735,400	1940	251	25,588,925
1921	65	13,174,650	1941	43	15,523,320
1922	133	5,055,800	1942	68	32,691,640
1923	68	5,261,800	1943	61	25,056,520
1924	78	13,545,750	1944	448	207,745,900
1925	88	11,612,380	1945	85	36,498,738
1926	357	93,610,250	1946	70	29,515,178
1927	64	6,783,160	1947	117	135,377,544
1928	1,947	88,836,000	1948	52	59,169,862
1929	46	20,334,600	1949	102	69,476,570
1930	49	5,705,500	1950	210	134,798,806
1931	17	7,773,000	1951	289	86,296,625
1932	306	42,657,360	1952	137	78,483,995
1933	156	65,604,100			
1934	109	19,497,173			
1935	461	17,191,000			
			Total	7,286	
			Mean	197	



# NORTH ATLANTIC HURRICANES AND TROPICAL DISTURBANCES

## YEAR 1952

There were six tropical storms during the 1952 season and all developed winds of hurricane force. It is not often that all tropical storms during a season reach hurricane intensity, but it is interesting to note that all the 1952 storms except one occurred during August, September, and the first week of October, the dates coming within the period of highest frequency of storms reaching hurricane intensity. In 1929 and 1930 there were two storms each and both developed hurricane intensity. In 1935 there were five storms and all classified as hurricanes.

The total number of tropical storms for the past season was below the seasonal average of 8.5. During each of the previous five years the total number was above average.

This was not a very destructive season from the standpoint of damage to property. Only one hurricane reached the United States coast. It caused damage amounting to \$2,750,000. South Carolina suffered the greatest damage. One hurricane crossed Cuba and caused considerable damage, but no monetary estimate was received. Another crossed the Dominican Republic, with no damage reported. The other three storms spent their energy at sea.

A total of 16 lives were lost, 3 in continental United States from hurricane ABLE, 9 at sea from hurricane BAKER, and 4 on Puerto Rico from hurricane CHARLIE.

There was only one very severe hurricane. This was hurricane FOX, which crossed Cuba and the Bahamas and developed winds of 165 m.p.h. just before it struck Cuba.

There were no hurricanes originating in or passing over the Gulf of Mexico during the 1952 season. Four storms originated to the east of the Caribbean and one in the eastern Caribbean, and three of these passed north of Cuba. A good proportion of storms of such origin and early movement curve to the northward without reaching the coast of the United States or Mexico. Also, as fall approaches, storm activity in extratropical regions increases and the breaking down of the Atlantic high pressure area occurs more frequently so that the westward-moving tropical storms find a trough of low pressure, with south or southwest winds aloft, in which to move. This facilitates their recurving to the east of the United States coast. Of the 1952 storms, two did not move west of longitude 60°. The last storm of the season originated in the western Caribbean late in October. The western Caribbean storms in October usually cross Jamaica, Cuba, and Florida. Only on rare occasions do tropical storms occurring after the middle of October enter the Gulf.

The following are individual reviews of all North Atlantic hurricanes and tropical disturbances that occurred during the 1952 season. All times mentioned are in Eastern Standard (+5 Zone Time). A synopsis of the important features of these storms is given in Table 18a; their tracks, named alphabetically in chronological order, are shown by chart at the end of this bulletin.

ABLE--August 25--September 2.--The first hurricane of the 1952 season was discovered on August 25 as a slowly developing easterly wave about 600 miles east of Puerto Rico. Aircraft investigations during the next few days disclosed that it was a partially developed, crescent shaped, squally wave with winds of about hurricane force in the northeastern quadrant. The southern semicircle remained open with strongest winds not

over 29 m.p.h. until the 29th, but during the 30th a circulation became established as it turned sharply from a northwesterly course and moved northward parallel to the Georgia coast.

Several ships were within 30 to 200 miles of the center of the storm on the 29th and 30th. The S.S. Santa Luisa experienced winds of 63 m.p.h. at 7:00 p.m. of the 29th when 200 miles north-northeast of the center.

At 1:00 p.m. of the 30th the S.S. David McKelvey reported winds of 58 m.p.h. when 200 miles or more southeast of the storm's center. The tanker Gulfscout, about 70 miles east-southeast of the storm at 7:00 a.m. of this date, reported 52-m.p.h. winds and barometer reading of 29.77 inches. At that time the hurricane winds near the center were 80 to 90 m.p.h. and gales extended 100 miles from center in the northern semicircle and 50 to 60 miles to the south of center. The ship apparently crossed just ahead of the storm.

At 1:00 p.m. of the 30th the tanker W.C. Yeager, staying on the left side of the path followed by the storm but traveling in the same direction, was about 60 miles south-southwest of the center of the storm and experienced winds of 40 m.p.h. At the same hour the S.S. Mae reported 54-m.p.h. winds and the barometer read 29.82 inches when 120 miles a little east of south of the storm.

The storm went inland near Beaufort, S. C., between 10:00 and 11:00 p.m., August 30. Strongest winds, as estimated by aircraft, were around 100 to 110 m.p.h., or slightly higher, just before it struck land, but the storm was very small. Beaufort was in the western edge of the calm center with an unofficial pressure of 29.09 inches and strongest wind 80 to 90 m.p.h. from west-southwest after the lull, which lasted from 10:20 to 10:30 p.m. The strongest wind probably occurred on the right or eastern side of the eye, which covered the marsh and swamplands between Beaufort and Charleston where no measurements were obtainable. At Charleston, about 50 miles east of the center, the wind reached 63 m.p.h., while at Savannah, 30 to 40 miles to the west, the highest gusts were only 35 m.p.h.

Damage was estimated at about \$2,200,000 in South Carolina, divided roughly as \$500,000 to property, \$200,000 to communications, and \$1,500,000 to crops. The crop damage was mostly to open cotton blown to the ground and damaged. Most of it was salvaged but beating by wind and rain in dirt lowered the grade and price. Two persons lost their lives in the hurricane in South Carolina. One man was killed when he tried to remove a live wire that had fallen on his automobile. Another was killed during a blinding rain when his car struck a tree that had fallen on the highway.

In North Carolina damage was minor. Highest winds over a rather widespread area of the state ranged around 40 m.p.h. and did little damage. A small tornado occurred in connection with the passage of the weakened hurricane in Stokes County and damaged a number of farm buildings. Torrential rains caused some flooding of lowlands. A number of highways were flooded for a short time and a few small bridges and embankments were washed out. Total actual damage probably did not exceed \$50,000.

The storm (ABLE), moving north-northeastward at about 20 m.p.h., reached the southwest section of the District of Columbia at 3:00 a.m., September 1. It was attended by heavy rains and winds of



YEAR 1952

30 to 40 m.p.h., with occasional gusts up to 50 m.p.h. The peak gust reported at Washington National Airport was 60 m.p.h. A small tornado did considerable damage to dwellings at Franconia, Va., in Fairfax County. A tornado, which may have been the same one, also struck with destructive force at Potomac, Md. Rainfall was heavy, ranging from 2 to over 3 inches. Property damage in the area was estimated to be in excess of \$500,000, caused primarily by flooding and the destructive force of the tornado. Falling trees and branches disrupted power and telephone facilities.

After leaving the Washington area the storm moved up into the New England States and was centered just to the northwest of Portland, Maine, at 7:30 a.m., September 2. It was in that area that the storm finally lost its closed circulation and dissipated. Pennsylvania, New York, and the New England States experienced winds of 30 to 40 m.p.h., with gusts to 50 m.p.h., during passage of the storm. The Weather Bureau station at New Castle County Airport, Wilmington, recorded 65-m.p.h. winds in gusts at 9:10 a.m. of September 1. Rainfall was moderate to heavy, resulting in some localized flooding. There was considerable damage to power lines in New Jersey and Pennsylvania. One man was killed between Rosedale and Centerville, Pa., when heavy winds tore a limb off a tree and hurled it through the windshield of his car.

BAKER—September 1-8.—Evidence of this hurricane was first noted in the early morning of September 1 by the S.S. Fritdjof Nansen which reported gale winds in squalls and increasingly rough seas near latitude 18° 45' N. and longitude 58° 45' W. Aircraft found the hurricane later in the day moving on a northwesterly course, with winds of 69 to 92 m.p.h. At 2:30 p.m., September 1 the British M.V. Australia Star, positioned 60 miles east-northeast of the center of the storm, reported winds up to 63 m.p.h., reaching 64 to 75 m.p.h. in gusts, and waves 30 feet high with 120 feet between crests. At 11:00 a.m. the ship's position had been 60 miles northwest of the center of the storm. At that hour the barometer was falling rapidly and heavy rain squalls were encountered. The ship was able to proceed away from the storm's path without changing course.

The storm continued on a northwesterly course for several days with slowly increasing intensity. It turned northward on the 4th and 5th, and passed about midway between Cape Hatteras and Bermuda on the 5th. Thereafter it curved more to the northeastward and moved several hundred miles south of Newfoundland on September 7th and 8th. Strongest winds reported by aircraft were 100 to 115 m.p.h., with gusts to 140 m.p.h., during the period from 10:00 a.m. of the 2d to 11:00 a.m. of the 6th. The highest winds in gusts occurred at 11:00 a.m. of the 3d.

The tanker Esso Raleigh encountered winds of 55 m.p.h. when 120 miles south-southeast of the center of the storm at 10:00 p.m. of the 5th and 63 m.p.h. at 4:00 a.m. of the 6th when 140 miles south. Its lowest barometer

reading was 29.55 inches.

The Honduran tanker Foundation Star split in two in 50-mile-an-hour winds and heavy seas about 130 miles east of Charleston early on the 6th. There were 21 survivors out of a crew of 30.

The S.S. President Polk reported 54-m.p.h. winds and barometer reading of 29.50 inches, when 130 miles north of the storm's center at 7:00 a.m. of the 7th.

The S.S. American Clipper experienced 54-m.p.h. winds at 4:00 p.m. when 120 miles north of the storm's center and 58 m.p.h. winds at 7:00 and 10:00 p.m. when 140 and 210 miles, respectively, northwest and west-northwest of the center. Its lowest barometer reading was 29.34 inches.

Aircraft estimated winds on the 7th to be 90 to 100 m.p.h. within 75 miles of center and gales to extend as far as 400 miles from the center.

CHARLIE—September 23-29.—An easterly wave that moved into the eastern part of the Caribbean Sea on September 22 caused heavy rains in the area of Puerto Rico and showed some signs of a developing center just south of Mona Passage on the 23d. This slight center moved northward over the Dominican Republic during the day and lost its identity, but on the 24th there was evidence that a weak center was reforming north of Turks Island with winds of 23 to 35 m.p.h. A reconnaissance plane dispatched to search the area on the 25th found that a small hurricane had developed with maximum winds of 92 to 104 m.p.h. near latitude 26° N. and longitude 74° 30' W. This hurricane was moving in a northwesterly to north-northwesterly direction at a fairly fast rate of speed but slowed down soon thereafter.

The British M.V. Samanco, positioned 50 miles to the northeast of the storm, reported northeast winds of 39 to 46 m.p.h. at 5:40 p.m. on the 25th, rapidly falling barometer, and rough sea. At 7:00 p.m. of this date the ship's observations at the center of the storm gave a barometer reading of 29.25 inches, light to moderate east-northeast winds, and rough sea. The center of the storm was 5 to 8 miles in diameter. At 7:45 p.m. the ship had changed course from a direction a little north of east to south-southeast and reported a shift of winds to the south-southwest. Winds were estimated at 47 to 54 m.p.h., and heavy rain occurred.

The hurricane began recurving to the northeast on the 26th. It passed Bermuda at some distance to the northwest on the 27th. At 5:00 p.m. on the 27th the British S.S. Dorset, positioned about 180 miles north-northwest of the center of the storm, reported rough seas, confused swells, and overcast sky. At 9:00 a.m. of the 28th the ship experienced very rough seas and winds 47 to 54 m.p.h. in the wake of the storm's path, at latitude 39° 40' N., longitude 62° 20' W. Flooding rains on Puerto Rico just prior to development of the storm center resulted in four deaths and damage estimated at \$1,000,000.

Reports from ships other than those mentioned above are given as follows:



# NORTH ATLANTIC HURRICANES AND TROPICAL DISTURBANCES—Continued

YEAR 1952

SHIP	POSITION IN RELATION TO STORM CENTER*	DATE	HOUR (e. s. t.)	WIND SPEED (m. p. h.)	BAROMETER (inches)	REMARKS
S.S. Aggersborg (Da.)	30 to 40 mi. S.E.	25	4:00 p.m.	46	29.75	Enroute from Savannah to
	90 mi. S.E.	25	7:00 p.m.	41	29.85	La Guaira, Venezuela.
S.S. Cristobal (Am.)	30 to 40 mi. south	26	Noon	52	29.52	Enroute from New York to
						Cristobal, C.Z.
S.S. Esso Havana (Am.)	140 mi. east	26	7:00 a.m.	48	29.81	Enroute from Baltimore, Md.
						to Cartagena, Colombia.
Tanker Sheldon Clark (Am.)	60 to 70 mi. S.E.	26	1:00 p.m.	52	29.77	Enroute from Melville, R.I.
	160 mi. S.W.	26	7:00 p.m.	52	29.81	to Houston, Texas.
S.S. Comayagua (Am.)	70 mi. N.W.	26	7:00 p.m.	86	29.50	Enroute from New York to
	120 mi. W.N.W.	26	10:00 p.m.	98	29.48	Canal Zone.
S.S. Atlantic Dealer (Am.)	60 mi. east	26	4:00 p.m.	75	29.70	Enroute from Philadelphia
	70 mi. south	26	7:00 p.m.	75	29.68	to Venezuela.
	130 mi. S.S.W.	26	10:00 p.m.	75	29.70	
S.S. Excambion (Am.)	180 mi. west	28	10:00 a.m.	58	29.64	Enroute from New York to
	200 mi. west	28	1:00 p.m.	58	29.68	Barcelona. Winds were 52
	240 mi. west	28	4:00 p.m.	52	29.71	m.p.h. from 4:00 a.m. to
	240 mi. west	28	7:00 p.m.	52	29.76	1:00 p.m. of the 29th when
	240 mi. west	28	10:00 p.m.	52	29.78	ship stayed within from
	270 mi. W.S.W.	29	1:00 a.m.	58	29.77	240 to 270 miles between
						west and west-southwest of
						storm's center.
Gen. R.E. Callan (U.S.N.S.)	130 mi. N.N.W.	28	7:00 a.m.	52	29.61	Enroute from New York to
	140 mi. N.W.	28	10:00 a.m.	63	29.63	Casablanca.
	120 to 130 mi. N.W.	28	1:00-4:00p.m.	58-63	29.63	At the last reconnaissance
	About 180 mi. N.W.	28	7:00-10:00p.m.	58	29.64-29.67	observation - 5:00 p.m., the
	140 to 170 mi. west	29	1:00-4:00a.m.	58	29.69-29.70	29th - winds were 80 m.p.h.
	170 mi. S.S.W.	29	7:00 a.m.	58	29.68	near the center of the
	240 mi. S.S.W.	29	10:00 a.m.	52	29.68	storm and gales extended
	240 mi. S.W.	29	1:00 p.m.	46	29.56	outward 300 miles.
	300 mi. S.W.	29	4:00 p.m. to midnight	64-52	29.59-29.68	

\* Distance is given to nearest 10 nautical miles.

After recurving the storm continued on a north-eastward course over the Atlantic and passed 400 miles southeast of Newfoundland on the 29th.

Strongest winds were estimated by aircraft at around 120 to 125 m.p.h. on the 26th, with gradual loss of force thereafter.

DOG—September 25-30.—An easterly wave showed signs of intensifying over the Atlantic about 700 miles east of the Lesser Antilles on September 25. On the 26th reconnaissance aircraft encountered winds as high as 78 m.p.h. over a considerable area in the northern quadrant of the wave, around latitude 16° to 18° N. and longitude 54° W., and winds in the northeast quadrant were estimated to be 100 m.p.h. The following day the strongest winds were only 52 m.p.h., and the storm continued to diminish slowly as it moved on a northwesterly course and died out by the 30th in the vicinity of latitude 23° N. and longitude 60° W. While winds of hurricane force attended this wave at one stage of development, the evidence indicates that it never developed a very well-defined center of circulation.

EASY—October 7-9.—Aircraft reconnaissance

first located this hurricane on the morning of October 7 about 700 miles east of Antigua. It developed briefly to hurricane intensity and then rapidly dissipated. When first located the storm was found to have a well-defined eye and winds of about 46 m.p.h. On the following day reconnaissance reports gave the maximum wind encountered as 109 m.p.h., but on the 9th maximum winds observed were 48 m.p.h. A trough in the westerlies, toward which the storm had been moving as it intensified, had moved eastward and brought the hurricane under the influence of the northwesterly winds behind the trough. Consequently it was deflected southeastward and dissipated. As early as 6:00 p.m. on October 6 there were indications that a storm was moving in a west-northwest direction when the S.S. Robin Sherwood, enroute from St. Johns Lightship to Cape Town, observed moderate to heavy sea swells at latitude 19.2° N., longitude 52.2° W. The ship was positioned at 17° N., 51° W., at 8:30 a.m. on the 7th and, being in the navigable semicircle, cleared the storm passing to her left.

No land areas were affected by this hurricane and no reports of damage to ships were received.



YEAR 1952

FOX—October 21–28.—This hurricane formed in the Caribbean Sea southeast of Swan Island on October 21 and 22 from a disturbance on the Intertropical Convergence Zone that had moved north of Panama a few days earlier. It reached hurricane force on the 22d, when it was about 150 miles east of Swan Island. A reconnaissance plane found the center, with winds up to 85 m.p.h., in the early afternoon of the 22d.

Three ships were affected by the storm during its early movement. The S.S. Margaret Lykes, enroute from Panama Canal to Houston, had winds of 46 m.p.h. and a barometer reading of 29.50 inches at 4:00 p.m. of the 22d, when she was 30 to 40 miles southwest of the center. Although the ship's course gradually carried her away from the storm's path, winds of 38 m.p.h. were experienced for 24 hours. The S.S. Chiriqui, enroute from New Orleans to Canal Zone and Honduras, was 130 and 200 miles southwest of the storm at 1:00 and 7:00 a.m., respectively, of the 23d and had winds of 46 m.p.h. The barometer read 29.81 inches at 1:00 a.m. The Dutch S.S. Ilos, enroute from New York to Ft. Liberte, Haiti, was 140 miles north-northwest of the storm at 1:00 p.m. of the 27th and had winds of 47 m.p.h. The barometer read 29.62 inches.

The storm moved slowly northward with increasing intensity, passed west of Grand Cayman Island on the 23d, and entered Cuba the afternoon of the 24th about 30 or 40 miles west of Cienfuegos. It was a very severe small hurricane when it struck Cuba.

Before striking the Cuban mainland the center passed over the weather station on Cayo Guano de Este, where the barometer dropped to 27.57 inches and a maximum wind speed of 170 to 180 m.p.h. in gusts was registered. This weather station was in

the edge of the "eye" and probably very nearly recorded the actual central pressure. An airplane observed a pressure reading of 27.75 inches a short time before the storm moved over the station, with estimated wind speed of 150 m.p.h. The pilot reported severe turbulence at low levels and advised against further penetration.

The center crossed Cuba from a point 30 to 40 miles west of Cienfuegos to Corralille at the rate of about 11 m.p.h. When it emerged on the north coast it had lost much of its force and the lower part of its circulation had become distorted in crossing the hills of central Cuba. It still retained winds in squalls above 100 m.p.h., however. The storm began curving eastward after it reached about latitude 24° N. and the center passed over the northern part of Andros Island, Bahamas, slightly south of Nassau, in the late afternoon of the 25th. Nassau had winds of only about 50 m.p.h., but other island stations in the Bahamas reported squalls of 90 to over 100 m.p.h. From the Nassau area the center moved east-southeastward to Watling Island (San Salvador) by late afternoon of the 26th. Cat Island had winds around 110 m.p.h. and a barometer reading of 29.36 inches at 11:30 a.m. on the 26th. From Watling Island the storm turned northward, joined a polar front trough, and lost its tropical characteristics on the 27th, when its strongest winds were only 40 to 50 m.p.h. It moved rapidly in a northeasterly direction as a wave disturbance of no great violence on the 28th and 29th.

The principal damage in Cuba was in rural areas. About 1,000 homes were destroyed and many sugar cane plantations severely damaged. Widespread damage to corn and tomato crops was reported from the Bahamas.



# HURRICANES AND TROPICAL DISTURBANCES

Table 18a.

(Names of storms in table correspond to names of tracks on chart at end of publication)

YEAR 1952

Storm name	Date	Area where first reported	Coast lines crossed	Highest wind speed reported	Lowest pressure reported	Place of dissipation reported	Intensity	Remarks
ABLE	Aug. 25-Sept. 1	Latitude 19.5° N., longitude 58.5° W.; about 600 miles east of Puerto Rico	South Carolina	110 m.p.h. on 30th	29.09 in. on 30th	Eastern Pennsylvania	Hurricane	Damage in South Carolina estimated at \$2,200,000; in North Carolina, \$50,000; and in Maryland and Virginia, \$500,000. Two persons lost their lives in South Carolina and one in Pennsylvania.
BAKER	Sept. 1-8	Near latitude 18° 45' N., longitude 58° 45' W.; about 450 miles east of Puerto Rico	None	120 m.p.h.	29.60 in. on 1st	Several hundred miles south-east of Newfoundland	Hurricane	Did not touch land. A tanker split in two 130 miles east of Charleston and 9 members of its crew lost their lives.
CHARLIE	Sept. 23-30	Just south of Mona Passage	Dominican Republic	120 to 125 m.p.h.	29.25 in.	Several hundred miles south-east of Newfoundland	Hurricane	Was only a slight center when it moved over the Dominican Republic and passed north of Turks Island. Flooding rains on Puerto Rico just prior to development of the center resulted in 4 deaths and damage estimated at \$1,000,000, of which \$252,000 was to crops.
DOG	Sept. 25-30	About 700 miles east of the Lesser Antilles	None	115 m.p.h.	No data	In vicinity of latitude 23° N., longitude 60° W.	Hurricane	Did not pass near any land area.
EASY	Oct. 7-9	About 700 miles east of the Lesser Antilles	None	109 m.p.h.	29.50 in. on 7th	Deflected south-eastward to near point of origin	Hurricane	Did not pass near any land area.
FOX	Oct. 21-28	About 420 miles southeast of Swan Island	Cuba and the Bahamas	165 m.p.h. (180 m.p.h. in gusts)	27.57 in. on the 24th	About 240 miles west-south-west of Bermuda	Hurricane	Many sugar cane plantations in Cuba severely damaged. 1,000 homes destroyed. Widespread damage to corn and tomato crops occurred in the Bahamas.



# NORTH ATLANTIC HURRICANES AND TROPICAL DISTURBANCES FOR PAST YEARS

Table 19.- Frequency of tropical storms by month and season and number of storms reaching hurricane intensity

	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1922									
Number of tropical storms	0	1	0	0	2	2	0	0	5
Number of hurricanes	0	0	0	0	1	1	0	0	2
1923									
Number of tropical storms	0	0	0	0	2	3	0	0	5
Number of hurricanes	0	0	0	0	1	1	0	0	2
1924									
Number of tropical storms	0	1	0	2	2	2	1	0	8
Number of hurricanes	0	0	0	2	1	1	0	0	4
1925									
Number of tropical storms	0	0	0	1	1	0	0	1	3
Number of hurricanes	0	0	0	0	0	0	0	1	1
1926									
Number of tropical storms	0	0	1	2	5	1	1	0	10
Number of hurricanes	0	0	1	2	3	1	0	0	7
1927									
Number of tropical storms	0	0	0	1	3	2	1	0	7
Number of hurricanes	0	0	0	1	1	0	0	0	2
1928									
Number of tropical storms	0	0	0	2	3	1	0	0	6
Number of hurricanes	0	0	0	1	1	1	0	0	3
1929									
Number of tropical storms	0	1	0	0	1	0	0	0	2
Number of hurricanes	0	1	0	0	1	0	0	0	2
1930									
Number of tropical storms	0	0	0	1	1	0	0	0	2
Number of hurricanes	0	0	0	1	1	0	0	0	2
1931									
Number of tropical storms	0	1	1	1	3	1	1	0	8
Number of hurricanes	0	0	0	0	2	0	0	0	2
1932									
Number of tropical storms	1	0	0	2	4	2	2	0	11
Number of hurricanes	0	0	0	2	2	0	2	0	6
1933									
Number of tropical storms	1	1	3	6	6	3	1	0	21
Number of hurricanes	0	1	1	2	4	2	0	0	10
1934									
Number of tropical storms	1	1	1	2	2	3	1	0	11
Number of hurricanes	0	1	0	1	1	1	1	0	5
1935									
Number of tropical storms	0	0	0	1	2	1	1	0	5
Number of hurricanes	0	0	0	1	2	1	1	0	5
1936									
Number of tropical storms	0	3	2	6	5	1	0	0	17
Number of hurricanes	0	1	1	1	2	0	0	0	5
1937									
Number of tropical storms	0	0	1	2	5	1	0	0	9
Number of hurricanes	0	0	0	0	2	0	0	0	2
1938									
Number of tropical storms	0	0	0	3	1	3	1	0	8
Number of hurricanes	0	0	0	3	1	0	0	0	4
1939									
Number of tropical storms	0	1	0	1	1	1	1	0	5
Number of hurricanes	0	0	0	0	0	1	1	0	2
1940									
Number of tropical storms	1	0	0	3	2	2	0	0	8
Number of hurricanes	0	0	0	3	1	0	0	0	4
1941									
Number of tropical storms	0	0	0	0	4	2	0	0	6
Number of hurricanes	0	0	0	0	3	1	0	0	4
1942									
Number of tropical storms	0	0	0	3	1	3	1	0	8
Number of hurricanes	0	0	0	1	0	0	1	0	2
1943									
Number of tropical storms	0	0	1	2	4	3	0	0	10
Number of hurricanes	0	0	1	1	2	1	0	0	5
1944									
Number of tropical storms	0	0	2	3	3	2	0	0	10
Number of hurricanes	0	0	1	2	2	1	0	0	6
1945									
Number of tropical storms	0	1	1	4	3	1	0	0	10
Number of hurricanes	0	1	0	1	1	1	0	0	4
1946									
Number of tropical storms	0	1	1	1	1	1	1	0	6
Number of hurricanes	0	0	0	0	1	1	0	0	2

Table 19.- Frequency of tropical storms by month and season and number of (Cont'd.) storms reaching hurricane intensity

	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1947									
Number of tropical storms	0	0	1	3	3	3	0	0	10
Number of hurricanes	0	0	0	1	1	2	0	0	4
1948									
Number of tropical storms	2	0	1	2	3	1	1	0	10
Number of hurricanes	0	0	0	1	3	1	0	0	5
1949									
Number of tropical storms	0	0	0	3	5	2	1	0	11
Number of hurricanes	0	0	0	2	3	2	1	0	8
1950									
Number of tropical storms	0	0	0	3	3	6	0	0	12
Number of hurricanes	0	0	0	3	3	5	0	0	11
1951									
Number of tropical storms	1	0	0	2	4	3	0	0	10
Number of hurricanes	1	0	0	1	3	3	0	0	8
1952									
Number of tropical storms	0	0	0	1	3	2	0	0	6
Number of hurricanes	0	0	0	1	3	2	0	0	6

Table 19a.--Total number of tropical storms by month and season and number reaching hurricane intensity for period 1887 to

	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1887 to 1952									
Number of tropical storms	8	26	31	96	168	125	32	3	489
Number of hurricanes	1	10	15	59	102	52	8	1	248

Storms are listed under the month in which they ran most of their course.

Table 19b.--Total number of tropical storms and loss of life and damage in the United States, 1915-1941

Year	Total number of occurrences	Number reaching United States Coast	Loss of life in United States	Damage in United States
1915	5	2	550	\$ 63,000,000
1916	13	3	107	33,324,000
1917	2	1	5	170,000
1918	4	1	34	5,000,000
1919	4	1	287	22,000,000
1920	4	2	2	3,000,000
1921	5	1	5	3,000,000
1922	5	0	0	0
1923	5	1	0	19,300
1924	8	1	2	Minor
1925	3	1	6	Minor
1926	10	3	269	106,500,000
1927	7	0	0	0
1928	6	3	1,836	25,000,000
1929	2	2	3	653,000
1930	2	1	0	Negligible
1931	8	3	0	0
1932	11	5	0	0
1933	21	5	63	45,650,000
1934	11	4	17	4,760,000
1935	5	2	414	11,500,000
1936	17	6	9	2,300,000
1937	9	5	0	42,500
1938	8	4	600	300,245,000
1939	5	3	3	2,000
1940	8	2	51	4,743,550
1941	6	4	10	7,675,500
Total	194	66	4,273	\$ 638,584,350
Mean	7.2	2.4	158.2	23,651,272

Table 19c.- Total number, loss of life, and damage in all areas, and in the United States, 1942 to 1952\*

Year	Total number		Loss of Life		Damage	
	In all areas	Reaching U.S. Coast	Total all areas	In United States	Total all areas	In United States
1942	8	3	17	8	\$ 31,101,000	\$ 27,101,000
1943	10	4	19	16	16,765,000	16,765,000
1944	10	4	1,076	64	202,010,000*	165,010,000
1945	10	5	29	7	80,133,000*	80,133,000
1946	6	4	5	0	5,200,000*	5,200,000
1947	10	8	72	53	135,757,500	135,757,500
1948	10	5	24	3	24,400,000*	18,400,000
1949	11	3	4	4	59,762,000	58,750,000
1950	12	4	27	19	36,925,000*	35,850,000
1951	10	1	244	0	25,045,000*	2,000,000
1952	6	1	16	3	3,750,000*	2,750,000
Total	103	42	1,533	177	\$620,848,500	\$547,716,500
Mean	9.4	3.8	139	16	56,440,773	49,792,409

\* Considerable additional damage for which figures are not available.

\*\* Loss of life and damage not available outside of United States prior to 1942.



## GENERAL SUMMARY OF FLOOD LOSSES FOR 1952

Monetary losses from floods in 1952, in the United States estimated at \$254,000,000 was about 25% of the record flood loss of \$1,028,742,000 recorded in 1951. The record-breaking flood in the Mississippi-Missouri River Valleys in April and May of 1952 accounted for 78% of this total or \$198,000,000. In 1950, the flood loss for the entire country was \$176,000,000 or \$22,000,000 less than the monetary damages sustained in the April-May flood in the Mississippi-Missouri Valleys in 1952. The national annual average is \$275,000,000, based on a 10-year period adjusted to the present price index. The total loss of life in 1952 was 54 as compared to 51 in 1951 and 93 in 1950. It was considerably less than

the national annual average of 81 lives (last 29 years). The reported savings resulting from the flood forecasting and warning service was more than \$100,000,000.

The major flood of 1952 occurred in the upper Mississippi-Missouri and Red River of the North Basins during the months of April and May. The previous maximum stages of record in the Missouri were exceeded in the reach from Elbowoods, N. Dak., to Fort Leavenworth, Kans., (nearly 1,100 miles) except at Bismarck, N. Dak., and Yankton, S. Dak. In the Upper Mississippi Basin the flooding along the main stem was record breaking between St. Paul and Winona, Minn. In the Red River of the North flooding was severe in the headwaters.



# ESTIMATED FLOOD LOSSES FOR 1952

River and drainage	Urban Property				Rural Property				Other Property				Total Losses	
	Residential		Commercial		Public	Crops		Livestock	Other	RRs, bridges, highways, etc.	Public Utilities	Miscellaneous Unclassified		
	Fixed	Movable	Fixed	Movable		Growing	Stored							Fixed
HUDSON BAY DRAINAGE														
Red River of the North.....		\$488,900		\$65,000	\$327,000	\$1,142,000			\$139,000	\$120,000	\$10,000	\$67,500	\$2,340,600	
Total.....		488,900		65,000	327,000	1,142,000			139,000	120,000	10,000	67,500	2,340,600	
ATLANTIC SLOPE DRAINAGE														
Potomac River and tributaries.....						1,000		\$5,000					18,000	
Choptank River.....					48,000	258,000			500	1,000		400	407,000	
Esopus (Creek, New York).....	\$8,200		\$23,500			7,000							38,700	
Lackawanna River.....	100,000		30,000		50,000					250,000	10,000	10,000	470,000	
Lehigh River.....	5,000				10,000							18,000	33,000	
Perkiomen Creek.....	6,000									25,000			31,000	
Delaware River.....	700												700	
Susquehanna and Juniata Rivers.....	300,000									29,400			322,400	
Rhode River.....						20,000		400				4,000	24,400	
Lincoln and Pee Dee Rivers.....						8,500	\$200	2,700		500		13,000	24,200	
Saluda, Broad and Congaree Rivers.....						8,000		8,500		2,000		11,000	29,500	
Catawba-Waterloo Rivers.....										2,500		15,000	17,500	
Savannah River.....						200		20,000					20,200	
Ocmulgee, Ogeechee and Altamaha Rivers.....												\$150,000	150,000	
Total.....	419,900		73,500		108,000	302,700	200	36,600	2,000	313,400	10,000	71,400	1,454,400	
EAST GULF OF MEXICO DRAINAGE														
Chattahoochee River.....														
Flint River.....														
Apalachicola River.....														
Oostaula and Etowah Rivers.....														
Cree, Tallapoosa and Alabama Rivers.....														
St. Johns, St. Marks, Suwannee and Ochlockonee Rivers.....														
Total.....														
MISSISSIPPI SYSTEM														
Upper Mississippi Basin														
Minnesota River.....	310,000	69,000	190,000	72,000	56,000		150,000	30,000	30,000	690,000	100,000	195,000	3,192,000	
St. Croix, Zumbro and Root Rivers.....	** 354,000					# 325,000						35,000	714,000	
Rock River and minor tributaries.....	610,300		539,900		59,800	2,121,700			141,300	82,200		370,300	3,925,500	
Mississippi River.....	** 401,100					# 3,883,500						6,300	14,607,500	
Total.....	5,675,400	69,000	729,900	72,000	115,800	6,330,200	150,000	30,000	441,300	772,200	100,000	565,300	22,439,000	
MISSOURI BASIN														
Missouri River.....	405,700	119,400	107,900	62,200	33,500	1,149,900	166,700	33,500	1,722,400	1,149,500	22,100	742,600	6,044,200	
Yellowstone and Tongue Rivers.....	** 200					# 42,800		6,000	400			11,000	61,300	
Black Creek and Popo Agie River (Wyoming).....	1,000		1,000							1,000			3,000	
Beaver Creek (North Dakota).....	† 15,600		† 4,700			# 12,300				36,900			69,500	
Little Missouri River.....	† 31,000		3,500			# 79,700				12,900	9,300		137,000	
Kettle and Heart Rivers and Apple Creek (North Dakota).....	† 49,500		† 32,000			# 75,600				127,000	4,000		288,100	

See reference notes at end of table.



## ESTIMATED FLOOD LOSSES FOR 1952

	Urban Property				Rural Property				Other Property		Miscellaneous	Unclassified	Total Loss	Lives Lost		
	Residential		Commercial		Public	Crops		Livestock	Other						RR's, bridges, Highways, etc.	Public Utilities
	Fixed	Movable	Fixed	Movable		Growing	Stored		Fixed	Movable						
River and drainage																
MISSISSIPPI SYSTEM--CONT.																
Missouri Basin--Cont.																
Cannonball River.....	† \$5,000		† \$3,900			\$11,200					\$128,300	\$1,200		\$140,600		
Oak Creek (South Dakota).....	** 1,600					1,100							\$1,100	3,800		
Grand and Moreau Rivers.....	** 22,100					# 127,900							23,100	173,100		
Cheyenne River.....						# 3,900								3,900		
Battle, Castle and Rapid Creeks (South Dakota).....	157,500	\$47,500	17,000	\$800	\$26,000	22,500	\$2,000		\$41,000	\$7,500	110,000	3,000	\$5,800	440,600		
Bad and White Rivers.....	** 500					# 951,200								300		
James River.....						# 3,965,700								60,800		
Vernillon, Big Sioux, Floyd and Soldier Rivers.....	** 954,300				500	# 4,011,700			1,800		6,300		400	75,300		
Salt Creek (Nebraska).....	** 4,200					# 55,900								2,900		
North Platte River.....						# 18,300								35,000		
Elkhorn River.....	1,000				600	14,000			500		1,000			53,300		
Canals in Gering Valley (Nebraska).....						# 26,500								17,100		
Nemaha River.....						20,700			500		1,400			87,100		
Big Blue and Little Blue Rivers.....	21,200					322,500		\$1,500	12,300	11,600	35,600			22,600		
Marais de Cygnes River.....	1,200								3,900		3,100			404,700		
Missouri River.....	\$44,525,800		† 478,700			# 97,094,900				10,300	244,500	50,600	153,900	20,817,300		
Total.....	46,097,400	166,900	648,700	63,000	60,600	108,008,300	168,700	41,000	1,782,800	357,800	1,857,900	90,800	902,700	21,088,300		
OHIO BASIN																
Allegheny River.....	145,700	27,300	65,800	55,700	22,700	3,000			200		105,600		722,100	1,148,100		
Muskingum River.....	49,500	800	98,000	14,900	26,200	500	5,800	37,000	41,000	3,000	28,100	10,100	108,700	423,100		
Greenbrier River.....	12,500		49,000		2,500						2,500	500	500	68,000		
Scioto River.....									10,000		20,000			30,000		
Little Miami River.....	500										12,300			12,800		
Licking River.....													12,000	12,000		
Whitewater River.....	1,000	2,000			1,300	1,900	100	600	2,500		102,200	6,400	3,500	121,500		
Green River.....	50,200	10,200		40,200	50,100	78,500	10,000		116,100		103,200	500	15,000	474,000		
Wabash and White River.....	57,000	10,000	60,000	70,000	25,000	35,000		3,500	9,000	1,000	26,000	2,000	193,000	491,500		
Cumberland River.....	35,800	15,800		6,500	12,000				8,100	10,200	6,800		16,000	111,200		
French Broad River.....											4,500			4,500		
Ohio River.....	782,600	2,200	119,200	41,800	609,400	54,400	3,800	7,000	52,300	4,900	158,800	3,900	202,900	2,043,200		
Total.....	1,134,800	68,300	392,000	229,100	749,200	173,300	19,700	48,100	239,200	19,100	570,000	23,400	1,273,700	4,939,900		
White Basin																
Little Red River.....	400								2,000	3,000				5,400		
Total.....	400								2,000	3,000				5,400		
Red Basin																
Ouchita River.....						500		500					500	1,500		
Little River.....						57,000			178,000		72,000	10,000	3,000	320,000		
Sulphur River.....						400,000					75,000		28,000	503,000		

See reference notes at end of table.



# ESTIMATED FLOOD LOSSES FOR 1952

	Urban Property				Rural Property				Other Property		Miscellaneous Unclassified	Total Loss	Lives Lost	
	Residential		Commercial		Public	Crops		Livestock	Other					
	Fixed	Movable	Fixed	Movable		Growing	Stored		Fixed	Movable				
River and drainage														
MISSISSIPPI SYSTEM--CONT. Red Basin--Cont.														
Red River.....													\$1,100	
Total.....														
Lower Mississippi Basin														
St. Francis River.....														
Yazoo River and tributaries.....														
Mississippi River.....	\$17,100	\$1,600	\$56,000	\$1,800	\$9,200	7,200	\$1,000	\$500	\$178,000	4,000	\$10,000	\$22,200	\$1,000	\$11,100
Total.....	17,100	1,600	56,000	1,800	9,200	199,700	3,000		38,600	1,800	41,600	5,500	46,400	444,500
WEST GULF OF MEXICO DRAINAGE														
Calcasieu River.....														
Sabine River.....			25,000			5,000		5,000			150,000		10,000	170,000
Trinity River.....						12,500		2,000			25,000		34,000	94,000
Bosque River.....	5,000	2,000	2,500	7,000	5,000	47,600	1,000	4,000		1,000	95,000		3,000	20,500
Colorado River.....						# 613,000		10,400	42,500	1,800	1,732,000		231,000	451,600
San Antonio River and tributaries.....	25,000		50,000		25,000	15,000		35,000	25,000		62,000	2,000	1,800	240,800
Guadalupe River.....	541,000	71,000	68,000	108,000	52,000	2,467,000		313,000	955,000		508,000	30,000	81,500	5,192,500
Rio Grande and tributaries.....	417,200	3,500	93,100	14,000	78,000	150,000		10,200			35,500	7,000	261,600	1,070,100
Total.....	988,200	76,500	238,600	127,000	160,000	3,318,100	1,000	379,600	1,022,500	1,800	2,608,500	39,800	622,900	9,584,500
GULF OF CALIFORNIA DRAINAGE Colorado Basin														
Gunnison River.....	100		300		500	17,000			1,100		4,000	200	17,900	41,100
Gila River.....						20,000			2,500		10,000			32,500
Colorado River.....									300		2,000			2,300
Total.....	100		300		500	37,000			3,900		16,000	200	17,900	75,900
GREAT BASIN DRAINAGE														
Sevier River.....						# 20,000								
Humboldt River and minor tributaries.....						# 1,358,600								
Little Humboldt River.....						# 705,000								
Truckee River.....	7,600		64,400			# 230,000								
Carson and Walker Rivers.....						# 50,500								
Spanish Fork and Hobbie Creek (Utah)....	52,000					# 653,000								
Jordan, Weber, and Provo Rivers and American Fork.....	119,200		372,600			778,800					31,000	1,122,100	550,000	2,973,700
Bear River.....						# 323,000								
Salt Creek and other miscellaneous Utah streams.....	82,000		444,000		138,000	# 74,000								
Total.....	260,800		881,000		138,000	4,192,900					31,000	3,944,800	550,000	9,998,500
PACIFIC SLOPE DRAINAGE Buena Vista Lake Basin														
Kern River.....						# 10,000								
Buena Vista Lake.....						# 1,200,000								
Total.....						1,210,000								

See reference notes at end of table.



# ESTIMATED FLOOD LOSSES FOR 1952

River and drainage	Urban Property					Rural Property				Other Property		Miscellaneous	Unclassified	Total Loss	Lives Lost	
	Residential		Commercial		Public	Crops		Livestock	Other							
	Fixed	Movable	Fixed	Movable		Growing	Stored		Fixed	Movable	RR's, bridges, Public Highways, etc.					Utilities
PACIFIC SLOPE DRAINAGE--CONT. Tulare Lake Basin																
Tulare Lake Basin																
Total																
San Joaquin Basin																
Mokelumne River																
Stanislaus River																
Merced River																
San Joaquin River and minor tributaries																
Total																
Sacramento Basin																
Lake Tahoe																
Sacramento River																
Total																
Coastal Drainage																
Calleguas Creek (California)																
Ballona Creek (California)																
Rio Hondo and tributaries																
Los Angeles River and minor tributaries																
San Gabriel River and tributaries																
Santa Ana River																
San Diego River																
Russian River																
Eel River																
Total																
Columbia Basin																
Snake River																
Willamette River																
Silvies River (Oregon)																
Total																
Grand Total																

Note: So far as practicable, figures in this table have been coordinated with the Corps of Engineers and other Federal and State agencies.  
 \* From the Corps of Engineers  
 \*\* Includes all urban property

† Includes all residential property  
 ‡ Includes all commercial property  
 # Includes all rural property  
 @ Includes emergency protection and flood fighting



# GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

## YEAR 1952

The maximum flood stages recorded during 1952 are shown in the chart below in percent of range between flood stage and the maximum stage of record.

The outstanding flood of the year occurred during April in the Missouri, Upper Mississippi, and in the Red River of the North Basins. Record-breaking stages were reached on the Missouri River in the reach from Elbowoods, N. Dak. to Fort Leavenworth, Kans. (nearly 1,100 miles), except at Bismarck, N. Dak., and Yankton, S. Dak. and is shown on the map as over 100 percent. Record stages were also reached in the Upper Mississippi River between Minneapolis and Winona, Minn., and at Muscatine, Iowa. In the Red River of the North the flooding was severe in the headwaters.

Major flooding occurred along the Ohio River toward the end of January. Flood stage was exceeded in the reach above Cincinnati, Ohio, by 6 to 8 feet and in the reach below from 0.7 foot to 9.8 feet. Flood losses along the Ohio were relatively light in comparison with past severe floods.

Flooding during February was mostly minor with no major or significant overflows reported. Mild weather caused the ice on the Missouri River to break up 3 to 4 weeks earlier than normal as far

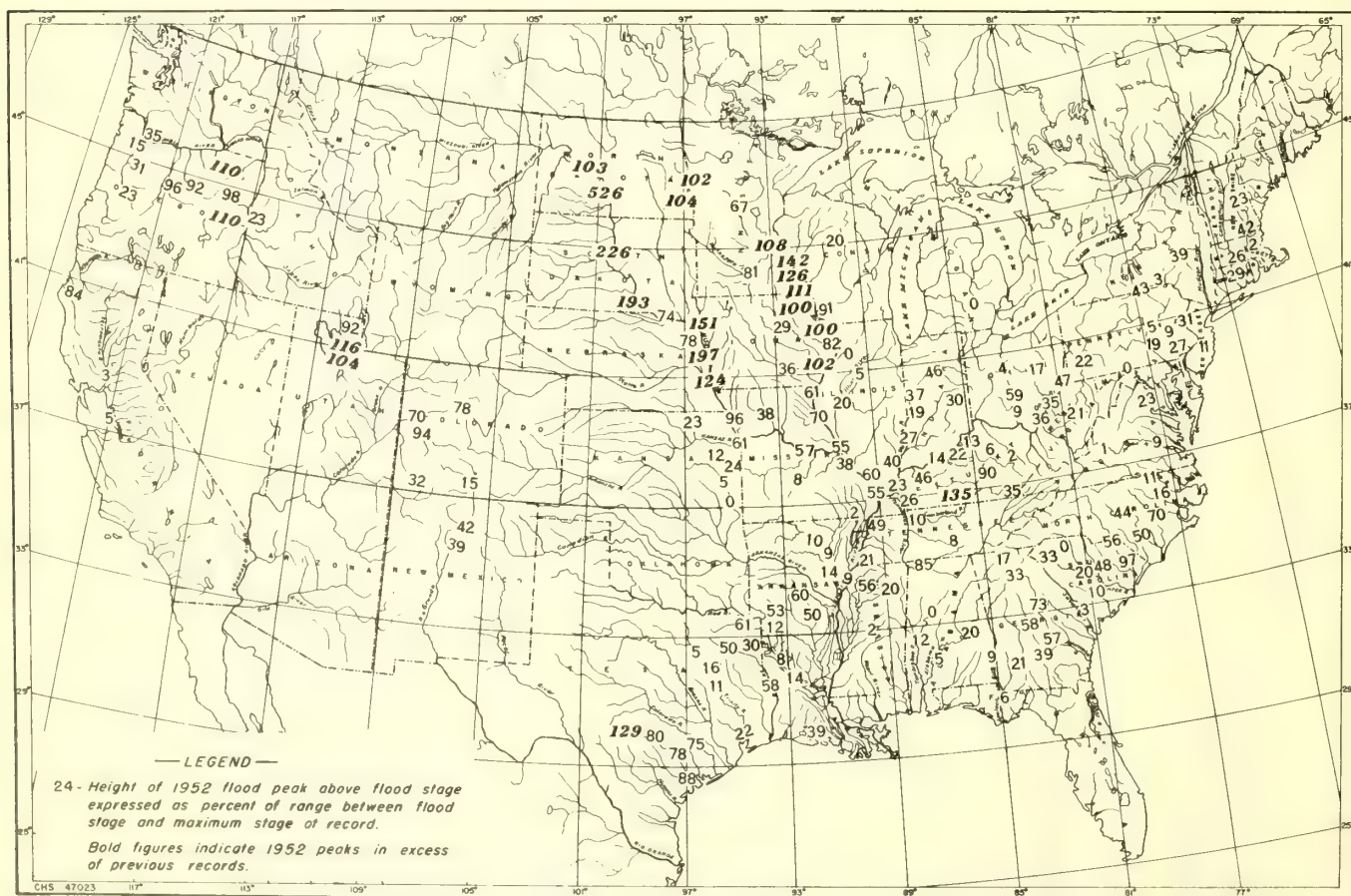
upstream as Sioux City, Iowa.

Record-breaking floods occurred in scattered areas throughout the United States during March. The floods in eastern Oregon and on the Barren River at Bowling Green, Ky., were the highest in about 40 years. On the Floyd River the stage at James, Iowa, was the highest since 1934.

The flooding during April was the severest of the year and was discussed in the first paragraph.

The most significant flooding during May occurred in the Central Valleys of California and in the Great Basin. Property damage in the Central Valleys was negligible but considerable damage was reported to cotton and barley crops in Tulare County in California. The floods in the Great Basin were generally the worst in history.

The severe flooding during June was confined to local basins scattered over the Country. In the Connecticut Basin, the flood of June 1952 was the fifth highest during the past 15 years. The flood in the lower Little Blue Basin in Nebraska had been exceeded on only three occasions during the period of record since 1936. The flood stages in the Colorado Basin were the highest in recent years along several streams and the highest known at many places.



MAXIMUM FLOOD STAGE DURING 1952 COMPARED WITH PREVIOUS MAXIMUM STAGE OF RECORD



## GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS—Continued

YEAR 1952

Several flash floods were reported throughout the Country during July. There was no major flooding. The flooding along the Floyd River in Iowa was one of the higher summertime rises. Record low stages occurred along several streams in the East Gulf of Mexico Drainage.

There was no major flooding during August. A few flash floods were reported in the Ohio and Columbia Basins, and in the West Gulf of Mexico Drainage. The most important of these occurred in the Ohio Basin at Ronceverte, W. Va.

The most important flooding during September occurred in the West Gulf of Mexico Drainage where major flooding occurred along the Guadalupe River, Cibolo Creek and in the lower portions of the San Antonio River in Texas. A record stage occurred on the Pedernales River at Johnson City, Texas.

There was no flooding during October. This was the first month since November 1939 that no overflows were reported at any of our river gaging

stations throughout the Country. Record to near record low stages were reported at several points as widespread drought conditions continued unabated throughout the month. For the country as a whole, it was the driest of any month since Nationwide records were begun in 1893.

There was no major flooding during November. The only flooding of any significance was in the Middle and North Atlantic States. The damages were insignificant. Record, to near record low stages were reported at several points throughout the Country.

The most important flooding during December occurred on the Russian River in California. On the Atlantic Slope, the Delaware River reached its highest stage since 1942 at Easton, Pa. Severe flooding occurred on Perkiomen Creek at Graterford, Pa. In the Arkansas Basin, the Cimarron River at Perkins, Okla., averaged the lowest of record for December.



# RADIOSONDE DATA

Average annual values

YEAR 1952

Table 20

ALBUQUERQUE, N. MEX. ( 838 MB. )					ATLANTA, GA. ( 983 MB. )					BIG SPRING, TEX. ( 926 MB. )					BISMARCK, N. DAK. ( 955 MB. )					BOISE, IDAHO ( 916 MB. )					BROWNSVILLE, TEX. (1015 MB. )					BUFFALO, N. Y. ( 990 MB. )									
Standard pressure surface (mb.)																																							
Number of observations					Dynamic height					Temperature					Relative humidity					Number of observations					Dynamic height					Temperature									
Dynamic height					Temperature					Relative humidity					Number of observations					Dynamic height					Temperature					Relative humidity									
Temperature					Relative humidity					Number of observations					Dynamic height					Temperature					Relative humidity					Number of observations									
Relative humidity					Number of observations					Dynamic height					Temperature					Relative humidity					Number of observations					Dynamic height									
SURFACE	366	1,629	14.6	39	364	309	15.9	68	361	784	18.4	43	358	505	5.6	67	365	868	11.2	57	364	7	21.8	79	365	221	8.5	77											
1,000	366	90			364	157			361	112			358	124			365	120			364	134	21.8	76	365	135													
950	366	541			364	598	16.5	58	361	560			358	551	6.0	62	365	559			364	585	19.6	72	365	565	8.2	66											
900	366	1,009			364	1,055	14.2	57	361	1,026	18.7	38	358	994	7.1	54	365	1,010	12.7	46	364	1,044	17.8	60	365	1,007	6.0	65											
850	366	1,496			364	1,536	11.7	55	361	1,514	16.0	38	358	1,463	5.4	52	365	1,488	10.4	42	364	1,532	15.9	50	365	1,473	3.6	64											
800	366	2,010	13.1	33	364	2,041	9.2		361	2,026	12.7	41	358	1,955	2.8	51	365	1,989	7.1	43	364	2,045	13.7		365	1,964	1.5	58											
750	366	2,554	9.2	36	364	2,580	6.5		360	2,568	9.0	43	358	2,481	- .2	50	365	2,522	3.4	45	364	2,595	11.1		365	2,486	- .8	53											
700	366	3,116	4.7	40	364	3,137	3.5		360	3,132	5.2		358	3,024	- 3.4	47	365	3,072	- .5	46	364	3,159	8.0		365	3,030	- 3.3	49											
650	366	3,717	2.4	44	364	3,740	.1		360	3,737	1.3		357	3,613	- 6.9		365	3,665	- 4.5		362	3,772	4.2		364	3,617	- 6.3	46											
600	365	4,352	- 4.6	47	362	4,372	- 3.7		360	4,372	- 3.0		357	4,227	-10.7		365	4,286	- 8.4		359	4,413	2.2		361	4,235	- 9.8	44											
550	365	5,031	- 9.6		362	5,057	- 7.9		358	5,059	- 7.5		357	4,895	-14.9		364	4,959	-12.8		354	5,109	- 4.2		357	4,904	-13.7												
500	364	5,760	-14.7		360	5,789	-12.6		357	5,792	-12.3		357	5,605	-19.7		364	5,676	-17.7		351	5,850	- 9.0		354	5,620	-18.3												
450	362	6,556	-20.0		358	6,591	-17.9		356	6,593	-17.8		356	6,386	-25.3		364	6,459	-23.4		348	6,668	-14.4		352	6,402	-23.6												
400	362	7,414	-26.2		356	7,455	-24.1		354	7,459	-24.1		354	7,224	-31.5		364	7,307	-29.7		345	7,540	-20.5		352	7,249	-29.5												
350	359	8,366	-33.0		355	8,415	-31.0		352	8,419	-31.2		349	8,154	-38.6		364	8,245	-36.8		341	8,513	-27.7		349	8,189	-36.1												
300	359	9,433	-40.6		352	9,491	-38.7		351	9,494	-39.2		344	9,195	-46.2		360	9,296	-44.4		329	9,602	-35.9		345	9,243	-43.1												
250	356	10,652	-48.6		341	10,719	-47.6		349	10,719	-47.7		339	10,388	-52.5		357	10,498	-51.7		313	10,843	-45.3		333	10,451	-49.9												
200	353	12,094	-55.8		326	12,162	-56.3		344	12,164	-55.9		333	11,819	-54.7		349	11,929	-55.7		302	12,296	-55.8		298	11,892	-54.1												
175	344	12,940	-58.4		316	13,002	-59.7		338	13,004	-59.4		327	12,672	-54.4		346	12,778	-55.9		299	13,134	-60.9		279	12,746	-54.6												
150	334	13,933	-60.9		308	13,958	-62.5		331	13,961	-62.4		326	13,657	-55.0		339	13,758	-56.2		291	14,080	-65.5		266	13,728	-55.6												
125	319	15,030	-63.6		287	15,074	-65.2		316	15,077	-65.3		317	14,818	-66.1		329	14,912	-67.4		271	15,177	-69.0		243	14,883	-57.1												
100	292	16,393	-64.8		260	16,427	-66.0		290	16,428	-66.9		301	16,233	-56.8		322	16,317	-58.3		231	16,500	-70.9		215	16,290	-57.6												
80	260	17,756	-63.3		224	17,782	-64.4		260	17,777	-65.7		271	17,648	-56.5		311	17,724	-57.9		186	17,825	-69.4																
60	230	19,532	-60.4						221	19,539	-62.0		243	19,475	-55.8		289	19,544	-56.7		159	19,559	-63.8																
40	208	20,670	-58.4						199	20,639	-55.9		219	20,639	-55.2		267	20,704	-55.9		145	20,686	-60.1																
30	163	22,082	-56.3						166	22,071	-57.3		160	22,070	-54.4		239	22,129	-54.8																				

BURRWOOD, LA. (1017 MB. )					CAMAGUEY, CUBA (1002 MB. )					CARIBOU, ME. ( 991 MB. )					CHARLESTON, S. C. (1017 MB. )					COLUMBIA, MO. ( 988 MB. )					DODGE CITY, KANS. ( 925 MB. )					EL PASO, TEX. ( 881 MB. )									
Number of observations					Dynamic height					Temperature					Relative humidity					Number of observations					Dynamic height					Temperature									
Dynamic height					Temperature					Relative humidity					Number of observations					Dynamic height					Temperature					Relative humidity									
Temperature					Relative humidity					Number of observations					Dynamic height					Temperature					Relative humidity					Number of observations									
Relative humidity					Number of observations					Dynamic height					Temperature					Relative humidity					Number of observations					Dynamic height									
SURFACE	362	3	20.4	85	252	122	21.8		366	191	3.3	76	366	13	16.4	84	358	238	12.4	65	366	792	12.5	57	366	1,195	18.6	36											
1,000	362	149	20.9	75	252	142	22.0		366	117	- 4.6		366	154	18.6	71	358	137			366	122			366	86													
950	362	596	18.4	68	252	595	21.6		366	538	4.1	67	366	598	17.0	63	358	573	13.1	55	366	561			366	542													
900	362	1,054	16.0	61	252	1,058	19.3		366	974	2.1	67	366	1,054	14.5	60	358	1,023	10.9	55	366	1,018	14.1	46	366	1,011													
850	362	1,538	13.9	53	252	1,548	16.6		366	1,434	- .0	66	366	1,535	12.1	55	358	1,498	8.8	52	365	1,499	12.1	43	366	1,501	18.6	30											
800	361	2,048	11.6		252	2,063	14.0		366	1,918	- 2.0	63	366	2,041	9.7	49	358	1,998	6.4	50	365	2,004	9.5	44	366	2,017	14.8	33											
750	361	2,591	9.0		252	2,610	11.5		366	2,436	- 4.2	60	365	2,582	6.9		358	2,532	3.8	47	365	2,540	6.3	43	366	2,563	10.7	36											
700	359	3,153	5.9		252	3,180	8.5		366	3,180	8.5		364	3,139	3.8		358	3,083	- .8	44	364	3,099	2.8	42	366	3,129	6.3	39											
650	353	3,759	2.5		247	3,795	5.2		366	3,553	- 9.5	49	363	3,743	- .4		358	3,681	- 2.6	42	362	3,694	- 1.1	41	366	3,736	- 1.8	41											
600	349	4,398	- 1.5		233	4,439	1.4		365	4,161	-12.7	46	362	4,375	- 3.5		356	4,305	- 6.4		360	4,328	- 5.3	40	366	4,372	- 2.8												
550	345	5,098	- 5.6		227	5,137	- 2.6		362	4,824	-16.6		360	5,062	- 7.6		353	4,986	-10.8		358	5,006	-10.0	39	364	5,059	- 7.4												
500	343	5,827	-10.4		217	5,884	- 7.0		361	5,529	-21.1		359	5,794	-12.4		352	5,706	-15.6		357	5,732	-15.5		360	5,792	-12.6												
450	339	6,635	-15.8		211	6,704	-12.3		361	6,305	-26.3		359	6,598	-17.7		352	6,500	-21.1		354	6,516	-20.5		359	6,594	-17.7												
400	336	7,509	-21.8		202	7,590	-18.2		360	7,141	-32.1		358	7,463	-23.6		349	7,352	-27.3		349	7,382	-26.8		357	7,461	-23.8												
350	329	8,477	-28.9		186	8,574	-25.2		359	8,071	-38.4		356	8,425	-30.6		349	8,299	-34.3		338	8,331	-33.8		354	8,422	-30.7												
300	324	9,562	-36.9		172	9,674	-33.7		353	9,116	-44.9		355	9,502	-39.6		348	9,360	-42.0		324	9,392	-41.6		351	9,498	-38.6												
250	319	10,797	-46.1						350	10,324	-50.0		354	10,730	-47.7		341	10,574	-49.4		313	10,607	-49.4		348	10,725	-47.3												
200	312	12,247	-55.9						337	11,765	-52.5		347	12,171	-56.7		332	12,015	-55.3		295	12,047	-55.5		345	12,172	-55.7												
175	307	13,087	-60.6						327	12,627	-52.5		345	13,009	-60.3		328	12,863	-57.3						341	13,014	-59.3												
150	295	14,035	-64.5						322	13,620	-53.3		343	13,963	-63.2		325	13,832	-59.1						335	13,971	-62.5												
125	271	15,139	-67.5						311	14,788	-54.5		313	15,075	-65.6		320	14,968	-61.5						322	15,084	-65.9												
100	235	16,473	-68.6						292	16,214	-55.3		274	16,428	-66.1		295	16,349	-61.1						302	16,432	-67.2												
80	196	17,810	-67.0						257	17,637	-55.4		238	17,784	-64.4		264	17,734	-60.4						271	17,782	-66.0												
60									214	19,469	-55.1		201	19,559	-58.7		231	19,539	-58.5						207	19,541	-59.6												
40																																							



# RADIOSONDE DATA

Average annual values

Table 20—Continued

YEAR 1952

Standard pressure surface (mb)	INTERNAT. FALLS, MINN. ( 972 MB.)				JOLIET, ILL. ( 995 MB.)				LAKE CHARLES, LA. (1017 MB.)				LANDER, WYO. ( 828 MB.)				LAS VEGAS, NEV. ( 936 MB.)				LITTLE ROCK, ARK. (1007 MB.)				MEDFORD, ORE. ( 968 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	355	360	3.2	74	362	179	8.8	77	365	5	18.7	81	364	1,696	7.3	49	365	660	19.5	31	365	79	16.1	68	366	401	13.7	63
1,000	355	123			362	135			365	149	19.7	71	364	107			365	84		365	141	17.1	61	366	127			
950	355	545	4.8	65	362	564	9.7	63	365	593	17.7	64	364	548			365	534		365	583	16.6	55	366	566	14.7	54	
900	355	982	3.0	62	362	1,010	7.7	60	365	1,051	15.4	60	364	1,004			365	1,000	20.3	365	1,038	14.0	56	366	1,017	12.5	52	
850	355	1,444	1.1	61	361	1,480	5.8	55	365	1,534	13.2	54	364	1,479			365	1,489	16.4	365	1,518	11.6	54	366	1,494	9.2	54	
800	355	1,930		58	361	1,974	3.6	50	365	2,042	11.0	48	364	1,982	8.9	41	364	2,001	12.3	365	2,023	9.2	50	366	1,993	5.8	56	
750	355	2,447	- 3.5	53	360	2,501	1.1	48	365	2,585	8.6	44	364	2,518	5.7	41	364	2,542	8.0	34	365	2,562	6.8	45	366	2,524	2.4	53
700	355	2,985		53	360	3,049	- 1.8	47	364	3,146	5.6		364	3,074	1.6	44	364	3,102	3.8		364	3,119	3.8		366	3,073	- 9	48
650	354	3,567	- 9.4	47	358	3,637	- 5.1	46	362	3,752	2.1		364	3,670	- 2.8	46	364	3,705	- 4.4		363	3,723	- 3.3		366	3,666	- 4.3	
600	352	4,176	-12.9	45	358	4,260	- 8.8		360	4,390	- 1.8		364	4,295	- 7.4	48	364	4,335	- 4.7		358	4,355	- 3.6		364	4,287	- 8.2	
550	350	4,838	-16.9		355	4,931	-12.9	40	357	5,078	- 6.2		363	4,969	-12.2	47	364	5,018	- 9.3		357	5,040	- 7.9		363	4,961	-12.5	
500	348	5,543	-21.5		354	5,648	-17.6		357	5,816	-11.1		361	5,689	-17.2		363	5,745	-14.2		350	5,772	-12.6		362	5,678	-17.3	
450	346	6,314	-26.9		348	6,431	-23.0		354	6,623	-16.5		360	6,475	-22.9		361	6,543	-19.9		347	6,573	-18.1		362	6,464	-22.9	
400	345	7,151	-32.9		343	7,280	-29.1		351	7,492	-22.7		357	7,323	-29.2		359	7,400	-26.3		345	7,438	-24.3		360	7,312	-29.2	
350	342	8,078	-39.7		339	8,222	-36.1		341	8,456	-29.8		351	8,264	-36.1		355	8,351	-33.5		343	8,397	-31.4		360	8,252	-36.2	
300	339	9,115	-46.6		336	9,276	-43.4		337	9,536	-37.7		345	9,317	-43.7		355	9,415	-41.5		340	9,471	-39.1		359	9,305	-43.7	
250	336	10,309	-51.7		321	10,485	-50.3		332	10,767	-46.7		335	10,520	-51.1		352	10,631	-49.1		337	10,697	-47.6		357	10,509	-51.2	
200	320	11,750	-53.0		306	11,920	-54.8		312	12,215	-56.0		314	11,955	-55.6		345	12,071	-55.6		330	12,145	-55.6		350	11,941	-55.9	
175	313	12,609	-52.9		290	12,773	-56.0		298	13,055	-60.2		307	12,803	-55.6		341	12,916	-57.5		323	12,989	-58.3		344	12,788	-56.1	
150	305	13,600	-53.3		274	13,746	-57.2		282	14,005	-63.9		294	13,785	-56.3		337	13,885	-59.2		313	13,952	-60.8		342	13,765	-56.9	
125	295	14,770	-54.3		255	14,894	-58.9		252	15,113	-66.9		268	14,939	-57.8		322	15,019	-61.7		293	15,076	-63.3		332	14,917	-58.2	
100	281	16,196	-55.2		236	16,287	-59.4		224	16,455	-68.5		238	16,340	-58.7		303	16,393	-63.3		259	16,440	-64.6		326	16,316	-59.2	
80	262	17,619	-55.2		208	17,685	-58.7		196	17,794	-67.1		208	17,744	-58.0		276	17,766	-62.4		223	17,804	-63.3		276	17,517	-58.7	
60	237	19,456	-54.8		176	19,500	-57.3		162	19,546	-63.0		163	19,563	-56.8		248	19,550	-60.2		191	19,583	-60.4		255	19,482	-57.5	
50	209	20,626	-54.4		164	20,654	-56.2		150	20,675	-59.9		147	20,719	-55.9		234	20,690	-58.6						255	20,680	-56.6	
40	163	22,064	-53.9						125	22,076	-56.9						213	22,097	-56.5						210	22,100	-55.4	

Standard pressure surface (mb)	MERIDA, MEXICO (1012 MB.)				MIAMI, FLA. (1017 MB.)				NANTUCKET, MASS. (1014 MB.)				NASHVILLE, TENN. ( 997 MB.)				NORTH PLATTE, NEBR. ( 917 MB.)				OAKLAND, CALIF. (1016 MB.)				OKLAHOMA CITY, OKLA. ( 970 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	323	27	25.2	76	365	4	23.3	76	360	14	9.2	84	366	177	15.1	69	366	849	8.4	68	366	6	13.5	75	365	391	15.4	63
1,000	323	133	24.8	75	365	151	23.0	73	360	132	10.2	75	366	148			366	118		366	136	12.9	73	365	129			
950	323	587	22.8	73	365	597	20.0	74	360	561	9.3	65	366	585	15.0	54	366	554		366	575	13.4	59	365	572	16.8	52	
900	323	1,054	20.1	73	365	1,062	17.1	71	360	1,006	7.0	62	366	1,040	12.4	55	366	1,003	11.0	56	366	1,023	12.8	47	365	1,027	14.8	50
850	323	1,545	17.1	72	365	1,548	14.7	64	360	1,474	4.9	58	366	1,518	9.9	53	366	1,480	9.9	48	366	1,501	10.7		365	1,509	12.5	49
800	323	2,061	14.4	67	365	2,059	12.5		360	1,967	2.8	54	366	2,020	7.5		366	1,981	7.4	46	366	2,003	8.0		365	2,015	9.8	47
750	323	2,607	12.0	57	365	2,602	9.9		360	2,493	.5	48	366	2,554	4.8		366	2,515	4.4	46	366	2,539	5.0		365	2,555	6.9	44
700	322	3,180	9.2		364	3,170	6.9		359	3,038	- 2.3	44	366	3,108	2.0		366	3,069	1.0	45	364	3,093	1.7		365	3,112	3.6	40
650	320	3,796	6.0		363	3,775	3.5		357	3,628	- 5.5		366	3,706	- 1.2		366	3,665	- 2.8	44	363	3,691	- 2.0		365	3,715	- 1	
600	318	4,443	2.3		360	4,420	- 2		354	4,247	- 8.7		366	4,337	- 4.9		365	4,291	- 7.0	43	363	4,318	- 6.0		364	4,346	- 4.1	
550	317	5,143	- 1.8		356	5,109	- 4.3		349	4,919	-12.7		363	5,017	- 9.1		363	4,965	-11.5	43	363	4,996	-10.5		363	5,031	- 8.6	
500	314	5,892	- 6.3		352	5,855	- 8.9		345	5,636	-17.5		363	5,746	-13.8		362	5,687	-16.5		361	5,721	-15.5		361	5,759	-13.5	
450	310	6,717	-11.6		347	6,700	-14.0		342	6,423	-22.7		361	6,544	-19.3		362	6,475	-22.2		361	6,512	-21.2		360	6,560	-19.0	
400	310	7,602	-17.5		347	7,550	-20.0		341	7,271	-28.6		361	7,403	-25.4		361	7,327	-28.4		357	7,369	-27.6		357	7,420	-25.2	
350	306	8,587	-24.8		343	8,524	-27.2		339	8,214	-35.3		359	8,358	-32.4		359	8,270	-35.6		357	8,315	-34.7		355	8,374	-32.3	
300	304	9,688	-33.2		339	9,616	-35.5		334	9,271	-42.4		359	9,427	-40.0		354	9,324	-43.3		353	9,375	-42.5		351	9,442	-40.3	
250	294	10,942	-43.1		336	10,857	-45.3		326	10,483																		



# RADIOSONDE DATA

Average annual values

Table 20—Continued

YEAR 1952

Standard pressure surface (mb.)	SANTA MARIA, CALIF. (1008 MB.)				S. STE. MARIE, MICH. (989 MB.)				SPOKANE, WASH. (931 MB.)				SWAN ISLAND, W. I. (1013 MB.)				TACUBAYA, MEXICO (772 MB.)				TAMPA, FLA. (1017 MB.)				TATOOSH ISLAND, WASH. (1012 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	366	71	12.0	82	364	221	4.2	82	365	722	10.2	56	357	10	26.1	81	328	2,306	16.4		366	9	20.4	81	363	31	9.1	86
1,000	365	138	12.3	78	364	126			365	123			357	123	25.7	80	328	58			366	157	21.1	75	363	130	9.2	82
950	365	578	14.0	62	364	550	5.1	70	365	558			357	580	22.7	80	328	521			366	604	19.1	70	363	559	8.1	74
900	365	1,026	14.3	45	364	986	3.1	68	365	1,007	10.2	50	357	1,044	19.7	77	328	999			366	1,064	16.6	67	363	1,000	6.2	68
850	365	1,507	12.2	40	364	1,448	1.0	65	365	1,480	7.0	51	357	1,535	16.9	71	328	1,493			366	1,550	14.2	61	363	1,466	3.8	63
800	365	2,012	9.3	37	364	1,934	— .9	61	365	1,975	3.5	53	357	2,050	14.3	62	328	2,022			366	2,060	12.0	54	363	1,957	1.3	59
750	365	2,550	6.2		364	2,451	— 3.1	55	365	2,500	— .0	53	357	2,599	12.0	53	328	2,573	15.1		366	2,606	9.4		363	2,479	— 1.4	53
700	365	3,106	2.8		364	2,991	— 5.7	52	365	3,044	— 3.4	51	356	3,168	9.2		328	3,152	11.0		366	3,168	6.4		363	3,021	— 4.3	48
650	365	3,706	— .9		363	3,573	— 8.7	48	365	3,632	— 7.0	48	356	3,785	6.0		328	3,772	6.4		365	3,779	3.0		361	3,606	— 7.7	45
600	363	4,336	— 4.9		360	4,185	— 12.2	46	365	4,246	— 10.8	46	356	4,431	2.4		326	4,419	1.8		365	4,416	— .6		361	4,219	— 11.3	43
550	362	5,017	— 9.3		356	4,848	— 16.2	44	363	4,914	— 15.0		356	5,129	— 1.7		325	5,120	— 2.4		364	5,111	— 4.8		360	4,885	— 15.5	
500	362	5,744	— 14.4		355	5,556	— 20.7		363	5,624	— 19.8		354	5,881	— 6.2		321	5,867	— 6.7		361	5,850	— 9.3		357	5,593	— 20.3	
450	362	6,540	— 20.1		351	6,331	— 26.0		362	6,401	— 25.2		353	6,704	— 11.3		319	6,692	— 11.5		360	6,669	— 14.6		352	6,367	— 25.7	
400	362	7,398	— 26.5		348	7,170	— 32.0		361	7,243	— 31.3		352	7,592	— 17.4		314	7,577	— 17.5		360	7,539	— 20.7		349	7,207	— 31.8	
350	362	8,348	— 33.7		344	8,101	— 38.7		357	8,174	— 38.2		350	8,578	— 24.5		298	8,563	— 24.6		358	8,512	— 27.6		347	8,138	— 38.7	
300	361	9,411	— 41.6		340	9,144	— 45.5		354	9,217	— 45.6		348	9,681	— 32.9		257	9,666	— 33.1		358	9,602	— 35.7		344	9,178	— 45.9	
250	361	10,625	— 49.6		335	10,343	— 51.1		350	10,413	— 52.4		347	10,937	— 42.8		227	10,923	— 43.0		355	10,843	— 45.3		330	10,373	— 52.5	
200	359	12,061	— 55.9		325	11,784	— 53.2		349	11,842	— 55.3		341	12,404	— 54.4						349	12,297	— 56.0		310	11,798	— 55.5	
175	358	12,907	— 57.8		324	12,644	— 53.4		347	12,694	— 54.8		332	13,246	— 60.8						345	13,135	— 60.9		299	12,648	— 55.0	
150	352	13,875	— 59.9		316	13,634	— 54.0		344	13,679	— 54.8		321	14,189	— 67.2						337	14,084	— 65.2		287	13,631	— 54.9	
125	347	15,008	— 62.2		307	14,801	— 55.3		336	14,840	— 55.7		279	15,272	— 72.7						318	15,182	— 68.8		272	14,792	— 55.4	
100	336	16,380	— 63.6		298	16,220	— 56.1		324	16,258	— 56.1		222	16,567	— 76.1						289	16,510	— 70.1		252	16,213	— 56.0	
80	317	17,750	— 62.6		285	17,637	— 56.3		306	17,677	— 55.8									248	17,835	— 69.0		232	17,633	— 55.5		
60	285	19,535	— 59.7		252	19,464	— 55.7		265	19,511	— 55.4									200	19,569	— 64.3		188	19,473	— 55.1		
50	261	20,679	— 57.7		218	20,627	— 55.1		221	20,674	— 55.0									184	20,691	— 61.1		166	20,642	— 54.9		
40	237	22,093	— 55.5		184	22,051	— 54.2		177	22,111	— 54.1									158	22,085	— 57.7						
30	166	23,944	— 52.7																									

WASHINGTON, D. C. (1007 MB.)			
SURFACE	366	88	12.2
1,000	366	148	13.2
950	366	584	12.5
900	366	1,032	10.3
850	366	1,506	7.8
800	366	2,004	5.5
750	366	2,537	3.0
700	366	3,085	2.48
650	366	3,681	— 3.0
600	365	4,306	— 6.4
550	365	4,983	— 10.4
500	365	5,708	— 15.1
450	365	6,503	— 20.5
400	365	7,358	— 26.6
350	365	8,308	— 33.3
300	364	9,372	— 40.9
250	362	10,588	— 49.0
200	353	12,028	— 55.8
175	350	12,874	— 57.8
150	342	13,840	— 59.4
125	330	14,975	— 61.1
100	312	16,355	— 61.4
80	284	17,736	— 60.4
60	250	19,536	— 58.6
50	226	20,683	— 57.1
40	197	22,098	— 55.6
30	158	23,936	— 53.5

Note: All observations scheduled at 0300, G.C.T. except at Merida, where they are taken near 0200, G.C.T., "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper

The number of observations shown in this table were in error in the 1951 issue; the correct number of observations may be obtained by writing to the

air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

National Weather Records Center, Asheville, North Carolina.



## PILOT BALLOON DATA

Table 21

### Average annual resultant winds

YEAR 1952

	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N.Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S.C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)					
Altitude (meters) m s. l.	No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations			No. of observations					
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed							
Surface-----	357	193	2.0	366	241	1.2	363	284	1.5	354	291	1.6	354	321	1.2	355	113	4.2	336	245	3.2	348	245	1.0	351	206	1.2	336	260	2.0	363	230	1.2			
500-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	344	124	2.9	336	250	4.5	348	237	2.3	341	225	1.4	336	257	2.7	---	---	---		
1,000-----	352	195	3.2	---	---	---	---	---	---	---	---	---	---	---	---	---	290	138	2.2	292	257	6.1	313	252	4.2	327	255	2.9	308	255	3.8	---	---	---		
1,500-----	346	209	3.2	---	---	---	363	264	3.4	318	284	4.2	348	268	1.3	241	208	.9	233	266	6.3	256	270	6.1	307	274	4.5	270	265	5.2	363	235	1.8			
2,000-----	330	228	3.1	366	240	1.9	355	275	4.5	301	286	5.5	340	258	1.9	188	275	1.5	184	278	7.4	212	276	7.8	283	277	6.1	236	274	6.4	363	236	2.4			
2,500-----	315	242	4.4	360	253	3.1	331	278	5.7	281	288	7.0	315	255	2.7	164	287	1.7	---	---	---	181	285	8.9	265	282	7.0	200	285	7.1	354	242	3.2			
3,000-----	305	256	5.6	345	260	4.2	308	276	7.2	263	288	8.5	290	254	3.8	158	280	2.7	---	---	---	---	---	---	252	281	7.9	---	---	---	347	253	4.2			
4,000-----	280	267	7.6	317	269	6.5	265	276	9.7	237	288	10.7	267	261	6.0	---	---	---	---	---	---	---	---	---	227	281	9.2	---	---	---	326	263	6.7			
5,000-----	237	277	8.2	291	273	8.3	217	278	11.0	213	290	11.8	---	---	---	---	---	---	---	---	---	---	---	---	188	280	9.5	---	---	---	307	267	8.4			
6,000-----	205	281	8.8	272	273	9.4	188	280	11.9	175	289	12.8	---	---	---	---	---	---	---	---	---	---	---	---	174	278	10.5	---	---	---	280	270	9.8			
8,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	247	274	13.5			
10,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	190	279	14.4			
	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N. C. (271 m.)			Havre, Mont. (767 m.)			Jackson- ville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Little Rock, Ark. (88 m.)			Medford, Ore. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)					
Surface-----	359	204	2.1	365	279	1.8	335	256	1.3	356	275	2.0	353	83	1.6	335	255	1.6	348	190	1.2	347	311	0.9	360	108	2.5	352	209	0.2	350	279	1.2			
500-----	---	---	---	---	---	---	335	248	2.0	---	---	---	---	348	151	.6	334	257	2.7	348	217	1.6	347	313	.8	361	107	2.6	344	229	.6	350	259	1.9		
1,000-----	---	---	---	---	---	---	328	254	3.0	355	266	---	---	336	242	1.4	305	258	4.0	320	238	2.3	343	260	.6	351	111	1.5	317	285	1.0	320	252	2.7		
1,500-----	---	---	---	---	---	---	312	269	4.7	345	269	5.6	301	267	3.4	278	270	5.8	295	261	3.8	312	223	1.3	338	144	1.1	276	307	1.6	297	265	4.0			
2,000-----	359	208	2.1	363	275	2.0	288	282	6.4	324	270	6.4	263	274	4.9	254	276	7.2	273	270	4.9	288	217	2.2	310	291	1.0	236	308	2.4	266	271	5.5			
2,500-----	355	222	2.1	359	254	2.4	264	284	8.1	304	271	7.5	228	276	5.2	223	281	8.7	263	271	6.0	252	217	2.1	290	275	2.1	209	303	3.2	235	280	6.3			
3,000-----	336	236	2.7	347	249	3.4	247	286	9.4	271	272	8.6	211	277	6.0	196	286	9.5	236	276	6.9	229	223	2.3	279	271	2.7	156	289	4.5	210	283	7.2			
4,000-----	298	249	4.5	310	259	5.4	207	288	11.2	207	275	10.2	168	280	7.0	---	---	---	---	---	---	---	---	---	---	235	264	4.0	---	---	---	---	---	---		
5,000-----	247	259	6.5	263	268	7.2	172	287	12.6	---	---	---	132	280	8.4	---	---	---	---	---	---	---	---	---	---	201	268	5.3	---	---	---	---	---	---		
6,000-----	215	264	8.1	228	274	9.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	183	268	6.5	---	---	---	---	---	---		
8,000-----	174	273	10.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Neb. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)					
Surface-----	349	268	3.1	345	190	2.1	337	229	0.5	366	233	0.5	352	24	1.2	333	274	1.6	335	251	1.1	348	128	1.4	332	270	3.1	314	280	2.0	345	237	1.4			
500-----	343	279	2.6	345	193	2.2	337	232	.9	366	244	.9	---	---	---	333	272	2.2	335	253	2.0	348	139	1.5	325	282	2.3	315	280	3.3	345	217	1.7			
1,000-----	315	273	1.6	337	201	2.7	313	241	2.4	366	235	1.0	352	21	1.2	306	270	3.6	298	250	3.2	335	154	1.9	299	270	1.0	274	277	4.5	305	211	2.8			
1,500-----	296	265	1.7	317	224	3.0	290	256	4.4	361	224	1.2	348	312	1.5	270	273	5.3	282	261	4.8	313	187	2.0	277	265	.9	---	---	---	266	214	2.7			
2,000-----	284	255	1.4	303	240	4.3	272	264	6.5	354	225	1.7	335	291	3.3	252	279	7.0	264	270	6.1	296	223	1.6	264	263	1.1	---	---	---	241	218	2.8			
2,500-----	274	259	1.2	290	253	5.6	260	272	7.9	350	234	2.3	318	283	5.5	231	284	8.5	234	275	7.0	281	246	2.7	255	251	1.6	---	---	---	---	---	---			
3,000-----	266	258	1.1	278	263	6.6	244	274	9.2	341	241	3.2	302	283	7.5	218	286	9.8	213	279	8.0	267	262	3.5	247	252	2.6	---	---	---	---	---	---			
4,000-----	254	264	2.6	248	272	8.5	---	---	---	316	252	5.0	261	287	9.5	179	291	11.9	176	289	9.1	242	279	5.1	228	256	4.1	---	---	---	---	---	---			
5,000-----	---	---	---	226	278	9.6	---	---	---	291	254	6.7	213	290	11.1	154	290	13.5	---	---	---	213	279	6.8	---	---	---	---	---	---	---	---	---			
6,000-----	---	---	---	209	284	10.4	---	---	---	255	262	8.2	170	287	12.0	132	290	15.6	---	---	---	175	287	7.0	---	---	---	---	---	---	---	---	---			
				Spokane, Wash. (725 m.)			Washington, D. C. (24 m.)																													
Surface-----	335	215	1.6	335	266	1.1																														
500-----	---	---	---	329	264	2.8																														
1,000-----	336	215	2.6	323	271	4.7																														
1,500-----	318	225	3.0	299	280	6.6																														
2,000-----	288	236	3.6	278	284	8.4																														
2,500-----	265	245	4.4	268	287	10.0																														
3,000-----	---	---	---	249	288	11.1																														
4,000-----	---	---	---	210	285	13.5																														
5,000-----	---	---	---	188	283	15.9																														

These free-air resultant winds are based on pilot balloon observations made near 2100 G. C. T.; directions in degrees from North (N = 360°, E = 90°, S = 180°, W = 270°); speeds in meters per second.



# RAWIN DATA

Average annual resultant winds

Table 22

YEAR 1952

Altitude (meters) m. s. l.	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Burrwood, La. (3 m.)			Caribou, Me. (191 m.)			Charleston, S. C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junc- tion, Colo. (1,473 m.)			Greensboro, N. C. (275 m.)			Hatteras, N. C. (3 m.)		
	No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations			No of observations		
	Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed		Direction	Speed				
Surface-----	366	117	0.8	362	151	2.6	364	25	0.7	365	114	2.7	364	78	0.8	366	273	1.7	364	230	0.6	365	141	0.4	366	33	0.6	365	269	0.4	364	256	0.8
500-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
1,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
1,500-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2,000-----	366	263	2.1	360	219	3.1	357	295	4.9	361	184	1.6	343	247	9	360	278	5.6	347	269	4.8	362	268	5.9	364	254	1.0	359	274	6.1	345	274	6.1
2,500-----	366	263	3.8	359	240	4.1	358	295	6.3	361	222	1.3	342	257	2.1	359	274	6.5	343	270	5.7	359	274	7.0	363	239	1.9	357	275	7.1	345	275	7.2
3,000-----	365	267	4.9	357	257	5.2	356	294	7.3	359	248	2.5	337	258	3.3	358	271	7.6	340	272	6.7	355	276	8.0	364	247	3.2	350	276	8.1	342	275	8.3
4,000-----	358	275	6.4	350	275	6.8	352	292	9.5	353	263	4.8	321	266	5.2	352	269	9.5	328	271	8.7	346	278	9.4	363	263	5.2	347	276	10.4	321	273	9.9
5,000-----	349	280	7.5	337	277	8.1	353	290	11.6	341	270	7.6	310	268	7.4	343	269	10.9	305	271	9.8	331	277	10.9	359	269	6.8	338	274	12.1	305	274	11.5
6,000-----	334	278	8.4	324	275	9.1	339	288	12.7	326	270	8.5	297	268	9.3	329	269	12.4	283	271	11.4	315	275	12.5	348	275	8.6	312	276	13.0	272	275	12.1
8,000-----	281	280	9.0	275	273	10.5	296	279	16.0	291	266	10.9	259	267	12.6	290	265	13.8	236	270	16.4	256	271	14.4	305	274	10.3	271	274	15.1	209	276	13.0
10,000-----	248	279	11.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12,000-----	212	275	14.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
14,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	

	Internat'l. Falls, Minn. (358 m.)			Little Rock, Ark. (80 m.)			Medford, Ore. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P. R. (28 m.)		
	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed
Surface-----	355	258	0.7	366	177	0.5	365	325	0.8	364	78	1.1	349	263	1.2	365	231	0.5	366	273	2.3	364	129	1.8	366	359	1.3	365	111	2.6	359	122	2.0
500-----	354	257	1.5	365	202	2.4	362	322	1.0	364	104	2.9	340	285	4.8	362	231	1.6	357	276	2.9	320	136	1.8	---	---	---	365	130	3.7	355	89	6.2
1,000-----	350	278	3.8	362	227	2.6	360	296	1.5	364	110	2.4	331	292	5.4	359	246	3.3	355	274	2.7	315	179	3.4	366	356	1.4	365	146	3.8	355	91	6.4
1,500-----	348	288	4.9	355	248	3.5	361	256	1.9	362	119	1.2	328	288	6.2	354	263	4.5	356	266	2.2	319	223	2.9	366	311	1.5	365	184	2.7	359	90	5.5
2,000-----	344	294	5.8	342	265	4.2	362	241	2.7	362	173	0.6	323	282	7.4	353	270	5.4	357	264	2.2	325	249	4.8	365	294	3.3	364	233	2.1	358	88	5.0
2,500-----	342	295	6.9	339	273	5.0	362	242	3.8	362	240	0.9	321	278	9.3	351	273	6.2	357	262	2.4	337	258	6.2	363	290	4.8	363	253	3.4	359	89	4.4
3,000-----	337	297	7.6	334	281	5.8	358	245	1.2	362	255	2.0	317	276	10.8	347	274	7.0	353	267	3.0	342	264	7.0	363	289	6.5	362	266	4.3	359	86	3.7
4,000-----	329	291	9.7	319	286	6.9	352	255	5.2	357	263	3.5	295	275	13.6	339	276	9.0	350	265	4.7	335	273	8.0	359	287	8.7	358	270	6.1	358	76	2.6
5,000-----	313	290	11.6	292	288	7.6	343	257	6.6	349	267	5.5	260	276	15.1	328	277	10.7	333	268	5.4	333	275	8.9	354	285	10.6	351	270	7.7	357	60	1.3
6,000-----	293	290	13.0	273	288	8.5	317	259	6.8	341	271	7.6	233	276	16.1	304	278	11.4	317	271	5.7	322	278	9.7	345	280	11.9	336	272	8.8	358	10	8.0
8,000-----	252	285	15.4	233	285	9.3	262	258	8.5	323	273	11.2	149	275	16.8	268	274	13.5	266	275	7.8	281	275	11.1	312	274	14.6	288	275	10.2	361	291	3.0
10,000-----	189	276	17.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
14,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
16,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
18,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
20,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
22,000-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

	St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)			Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Tatoosh Island, Wash. (33 m.)			Washington, D. C. (88 m.)		
	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed
Surface-----	365	272	0.4	366	270	1.3	358	298	0.8	364	192	1.1	349	174	2.0	360	266	0.3
500-----	320	270	1.1	360	339	1.9	357	286	2.3	---	---	---	---	---	---	---	---	---
1,000-----	346	280	3.4	360	337	1.8	350	280	4.1	359	216	2.1	346	224	2.4	351	275	5.2
1,500-----	345	289	5.0	357	355	1.3	338	283	5.2	359	236	3.1	344	227	2.6	347	278	6.3
2,000-----	345	292	6.3	356	339	1.2	324	284	6.3	356	245	4.1	344	239	3.4	338	277	7.2
2,500-----	344	294	7.4	355	300	1.7	312	285	7.2	354	251	4.6	340	247	4.5	338	277	8.3
3,000-----	346	293	8.6	352	285	3.1	294	285	8.1	355	256	5.7	336	254	5.6	331	275	9.4
4,000-----	338	293	10.4	343	275	4.7	252	284	10.0	349	265	7.6	322	262	7.4	310	275	11.6
5,000-----	317	291	12.3	335	268	6.3	214	285	11.0	345	270	9.3	299	262	8.9	284	273	12.9
6,000-----	305	288	14.0	319	267	7.0	174	283	12.5	321	272	9.6	276	263	9.3	251	272	13.6
8,000-----	279	285	16.2	280	260	9.5	---	---	---	---	---	---	---	---	---	---	---	---
10,000-----	218	280	18.9	250	260	12.0	---	---	---	---	---	---	---	---	---	---	---	---
12,000-----	162	281	17.1	222	256	13.4	---	---	---	---	---	---	---	---	---	---	---	---
14,000-----	---	---	---	203	256	11.0	---	---	---	---	---	---	---	---	---	---	---	---
16,000-----	---	---	---	180	258	5.6	---	---	---	---	---	---	---	---	---	---	---	---

These free-air resultant winds are based on rawin observations made near 0300 G. C. T., directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°); speeds in

meters per second. Annual values are not computed for any level having less than 10 monthly values or having more than 1 monthly value missing in a single season.



## SOLAR RADIATION DATA

Table 30--Average daily values (direct and diffuse) received on a horizontal surface, tabulated in langleys, and the percentages of normal.

YEAR 1952

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%
Aklavik, MacKenzie					181		409		505		579		450		294		144									
Albuquerque, N. Mex.	302		386		505		619		671		732		688		640		555		435		336		284		517	
Annette Island, Alaska																										
Apalachicola, Fla.	286		327		449		610		631		644		626		459		432		421		344		276		459	
Atlanta, Ga.	234		271		406		475		522		582		556		421		462		390		266		219		400	
Barrow, Alaska	1		44		183		423		534		588		441		304		130		42		4		0			
Bethel, Alaska	35		105		282		471		531		472		337		252		216		92		41		26		238	
Big Spring, Tex.	274		351		476		595																			
Bismarck, N. Dak.			257									667		535		422		323		164		128				
Blue Hill, Mass.	142	91	220	93	274	83	376	93	450	95	555	106	577	113	423	91	378	103	262	97	156	94	117	86	328	
Boise, Idaho	171		333										714		639		511		378		244		137			
Boston, Mass.	118		203		273	93	364		440		569		586		427	106	396	120	27	120	140	106	119	120	326	
Brownsville, Tex.	301		393		403		531		640		620		668		673		523		524		266		286		486	
Canton Island, Pacific Area	717												555		588		648		665							
Caribou, Me.			224										605		520		371		191		134					
Charleston, S. C.	257		294		415		527		598		642		579		494		430		369		301		219		427	
Cleveland, Ohio									480		585		593		560				304		149					
Columbia, Mo.	187		260		350		492		509		663		607		506		500		413		233		150		406	
Columbus, Ohio	115		192		281		408		494		616		605		500		451		284		166		105		406	
Davis, Calif.	153	77	261	102	392	102	500	93	673	95	678	94	662	96	631	103	502	101	353	101	236	103	118	80	430	
Dodge City, Kans.	279		326									722		559		538		444		284		260				
East Lansing, Mich.	93	88	174	95	259	94	363	98	425	107	496	107	455		395	98	331	110	247		167		65	69	284	
East Wareham, Mass.	123		214				362	90	458	100	540	105	540		401	90	400	110	281	110	164	100	118	84		
Edmonton, Alberta	95				348		465		533		525		559		488		312		229		107		66			
El Paso, Tex.	319		443		559		651		697		718		707		668		602		508		346		324		545	
Ely, Nev.													666		662		533		454		302		214			
Fairbanks, Alaska	21		84		239		424		469		558		450		355		190		78		20		6		241	
Fort Worth, Tex.	282		337		481		563		647		747		680		670		563		496		301		272		503	
Fresno, Calif.	199	105	320	116	396	95	543	96	702	100	739	103	677	102	661	105	595	115			301		175	109		
Glasgow, Mont.			297										691		604		477		349							
Grand Junction, Colo.	226		341		389		582		689		723		676		587		450		271		209					
Grand Lake, Colo.	201		316		404		559		537		720		628		484		504		402		246		189		433	
Great Falls, Mont.													728		586		475		322		168		140			
Greensboro, N. C.							455		574		589		568		472		364		232							
Griffin (Experiment), Ga.	230		280		422		532		589		653		639		486		470		405		282		186		431	
Hatteras, N. C.																										
Hatteras, N. C.	221		286		418		577		656		709		638		578		447		364		264		189		446	
Indianapolis, Ind.	109		206		295		413		469		596		594		484		464		328		192		101		354	
Inyokern, Calif.	269		383		516		624		735		768		711		714						237					
Ithaca, N. Y.	112	92	244	113	277	102	390	114	465	102	584	113	617	119	494	105	424	119	253	109	118	95	104	102	340	
Jeannerette, La.					453																					
Keflavik, Iceland	8				156		318		407		589		436		372		228									
Lake Charles, La.	249		319		437		580		595		671		573		592		511		476							
Lander, Wyo.			358		492		582		595		747		719		573		561		405		231		199			
Las Vegas, Nev.	245		369		442		540		694		744		684		670		541		468		322		257		498	
Lincoln, Nebr.															471		474		360	122	213	103	169	102		
Little Rock, Ark.	179		260		418																229					
Los Angeles, Calif. (WBAS)	255		368		476		484		650		628		658		605		526		368		295		264		465	
Los Angeles, Calif. (WBO)													699		630		526		376		256		213			
Lynn, Mass.													603		626											
Madison, Wis.	142	93	206	98	332	105	431	106	414	77	498	93	576	107	471	103	411	117	312	129	161	108	93	78	337	
Medford, Ore.	134		219		329		536		657		639				661		489		330		173		89			
Miami, Fla.	372		449		520		600		595		624		597		531		510		327		366		367		488	
Nashville, Tenn.	141	100	240	111	371	126	454	81	579	87	680	130	676	133	541	118	509	131	389	132			169	127		
Newport, R. I.	142	84	257	107	320	94	399	93	524	109	580	107	632	121	474	102	445	116	306	111	184	103	132	94	366	
New York, N. Y.							338	88	462	103	520	106	547	116	391	99	366	108	279	107	149	93	109	81		
North Head, Wash.			160		289		498		548		495		532		411		394		255		180		90			
Oak Ridge, Tenn.	161		237		380		448		562		629		630		460		483		373		164		116		387	
Oklahoma City, Okla.	354		347		480		492		648		751		671		608		565		492		306		260		498	
Ottawa, Ontario	161		269		353		461		491		583		571		488		383		226		124		90		350	
Pearl Harbor, T. H.	396																									
Phoenix, Ariz.	290		426		509		611		738		760		688		636		583		501		333		285		530	
Portland, Me.													677													
Put-in-Bay, Ohio	122		227		289		407		478		594		588		487		426		296		155		83		346	
Rapid City, S. Dak.	167		249		354		488		495		554		577		522		471		354		210		159		383	
Riverside, Calif.	252	97	345	111	442	90	488	99	708	119	676	111	683	116	338	118	506	108	403	112	282	100	245	112	472	
St. Cloud, Minn.																										
Salt Lake City, Utah	182		276		316		501		624		693		630		543		476		374				146			
San Antonio, Tex.	249		390		475		529		580		589		636		654		511		288				283		484	
Santa Maria, Calif.	278		359		411		538		665		660		680		577		461		312				253		481	
Sault Ste. Marie, Mich.	114		255		344		495		486		569		575		492		368		246		99		78		343	
Sayville, N. Y.	155		286		313		370		515		580		607		432		410		318		190		142		360	
Schenectady, N. Y.	125		260		304		362		364		414		408		371		270		227		103		86		275	
Seabrook, N. J.	161		277		339		375		472		510		596		450		408		308		169		137		350	
Seattle-Tacoma AP, Wash.	80		155		261		433		539		519		614		482		378		213		120		63		321	
Seattle (Univ. of W.), Wash.	68		130		232		398		482		451		576		453		359		197							

Note: Langley is the unit used to denote one gram calorie per square centimeter.

NWRC, Asheville, N. C. — 9/4/53 — 2200







Chart I. Departure from Normal of Annual Average Temperature ( $^{\circ}\text{F.}$ ) at Surface, 1952.

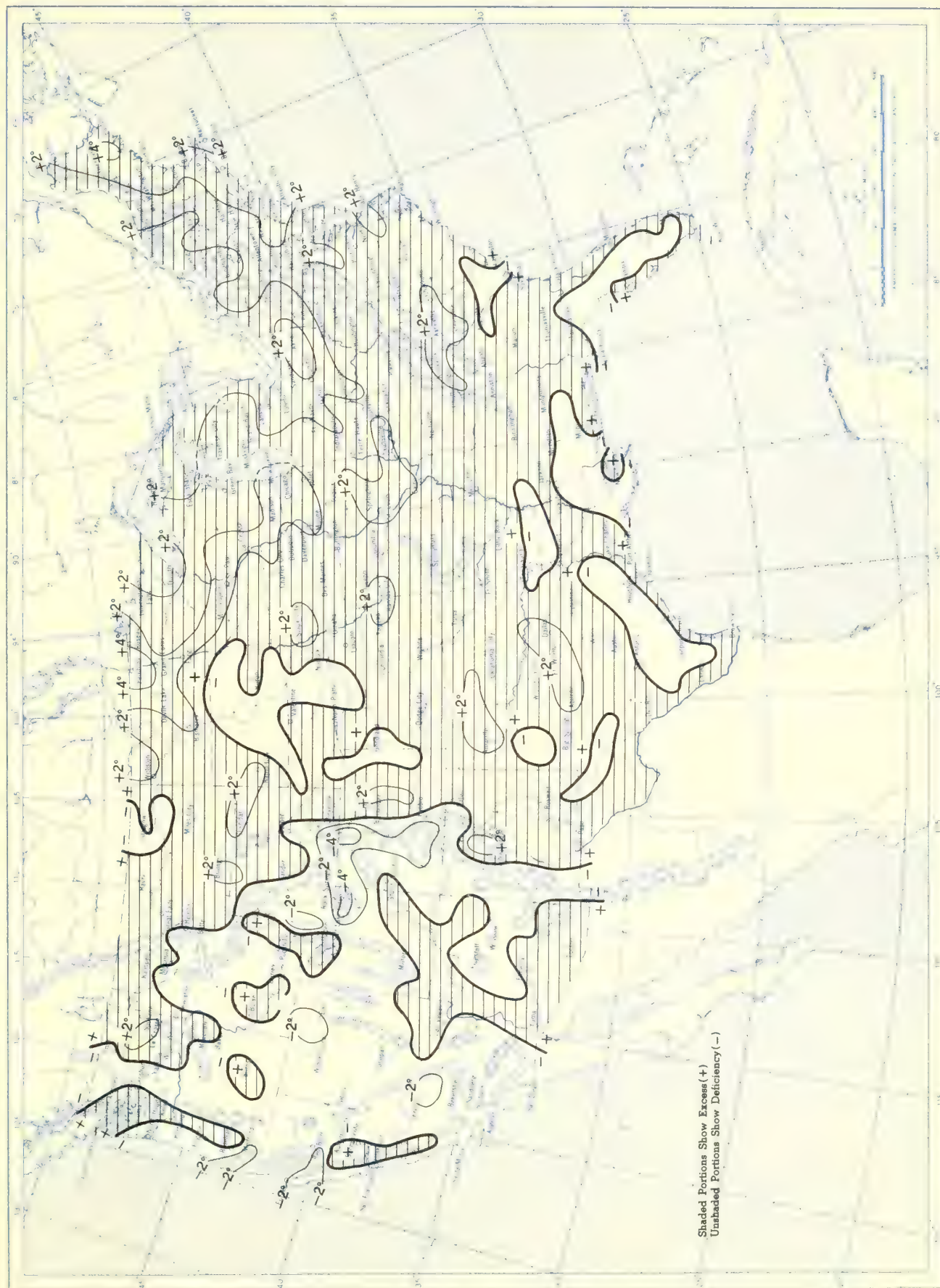








Chart II. Percentage of Normal Annual Precipitation, 1952.

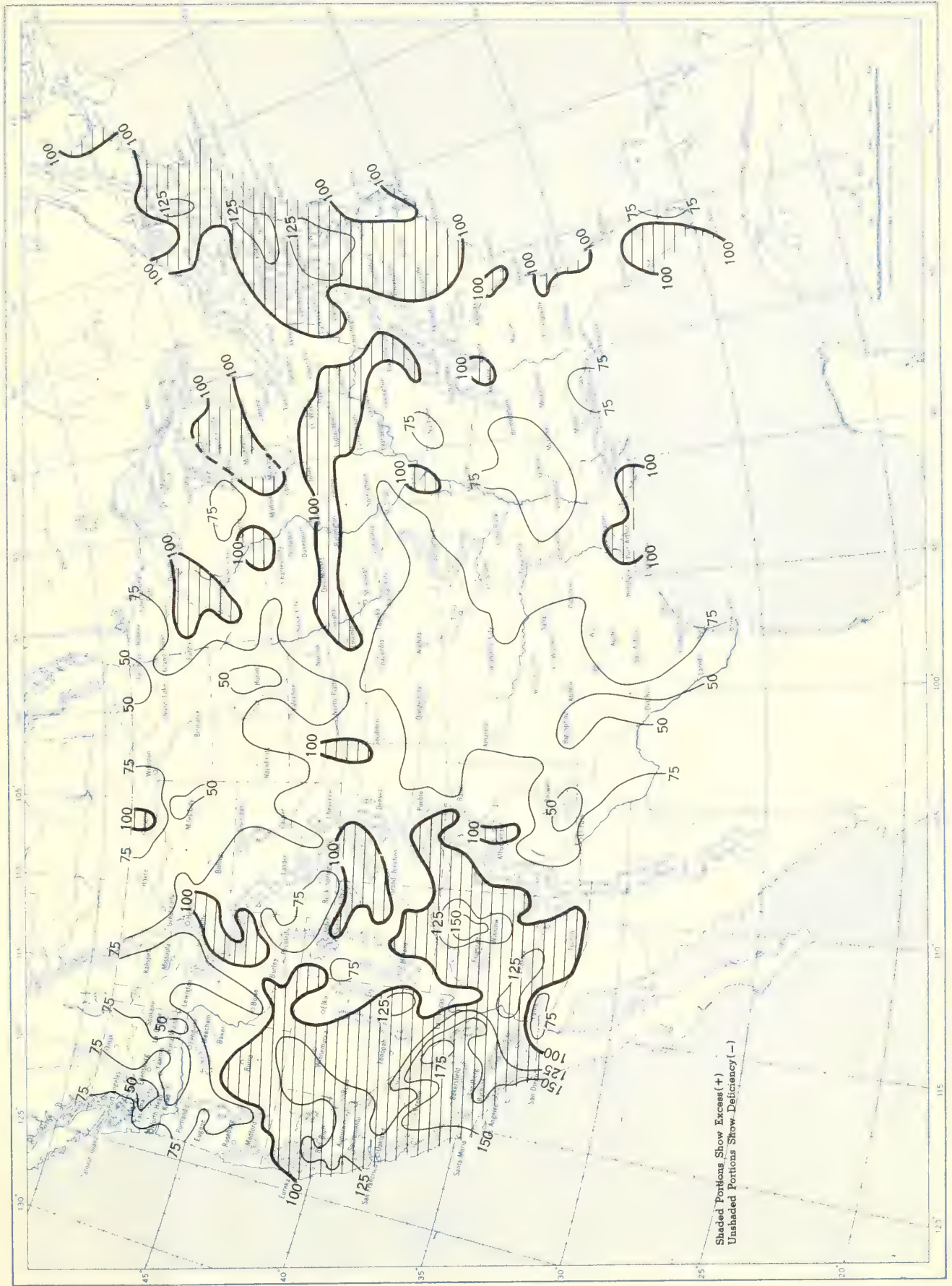








Chart III. Tracks of Tornadoes, 1952.

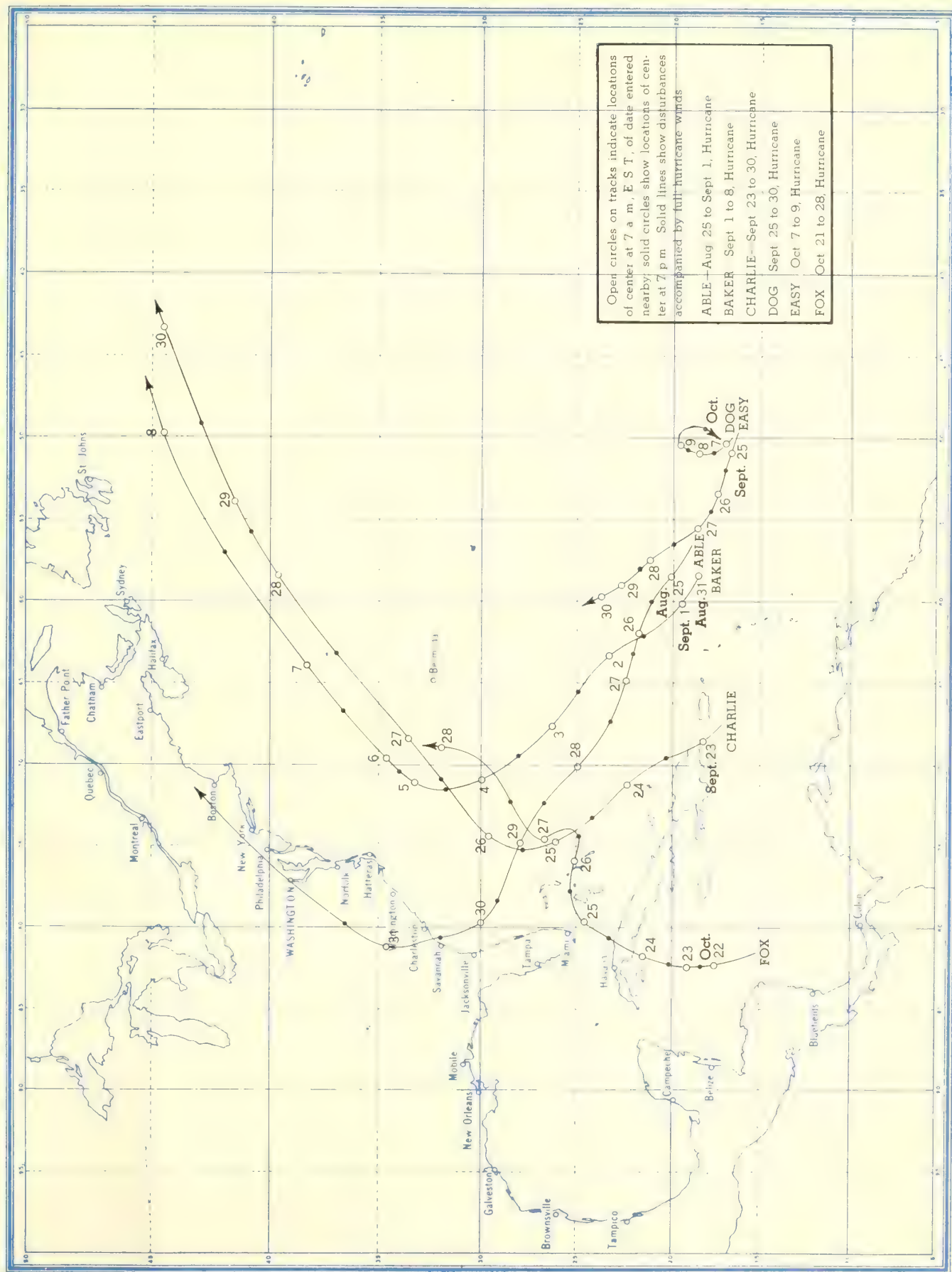








Chart IV. Tracks of North Atlantic Hurricanes and Tropical Disturbances, 1952.





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